PROJECT ARCATA TO TRINIDAD
HUMBOLDT COUNTY

ISSUE FOR PERMIT: 5/28/2024

PERMIT NAME:	VERO_CALTRANS_06
JURISDICTION:	CALTRANS
COUNTY:	HUMBOLDT
BORE FOOTAGE:	13344'
STRUCTURES:	10 HANDHOLES

DRAWING INDEX

APPLICATION PREPARED BY:

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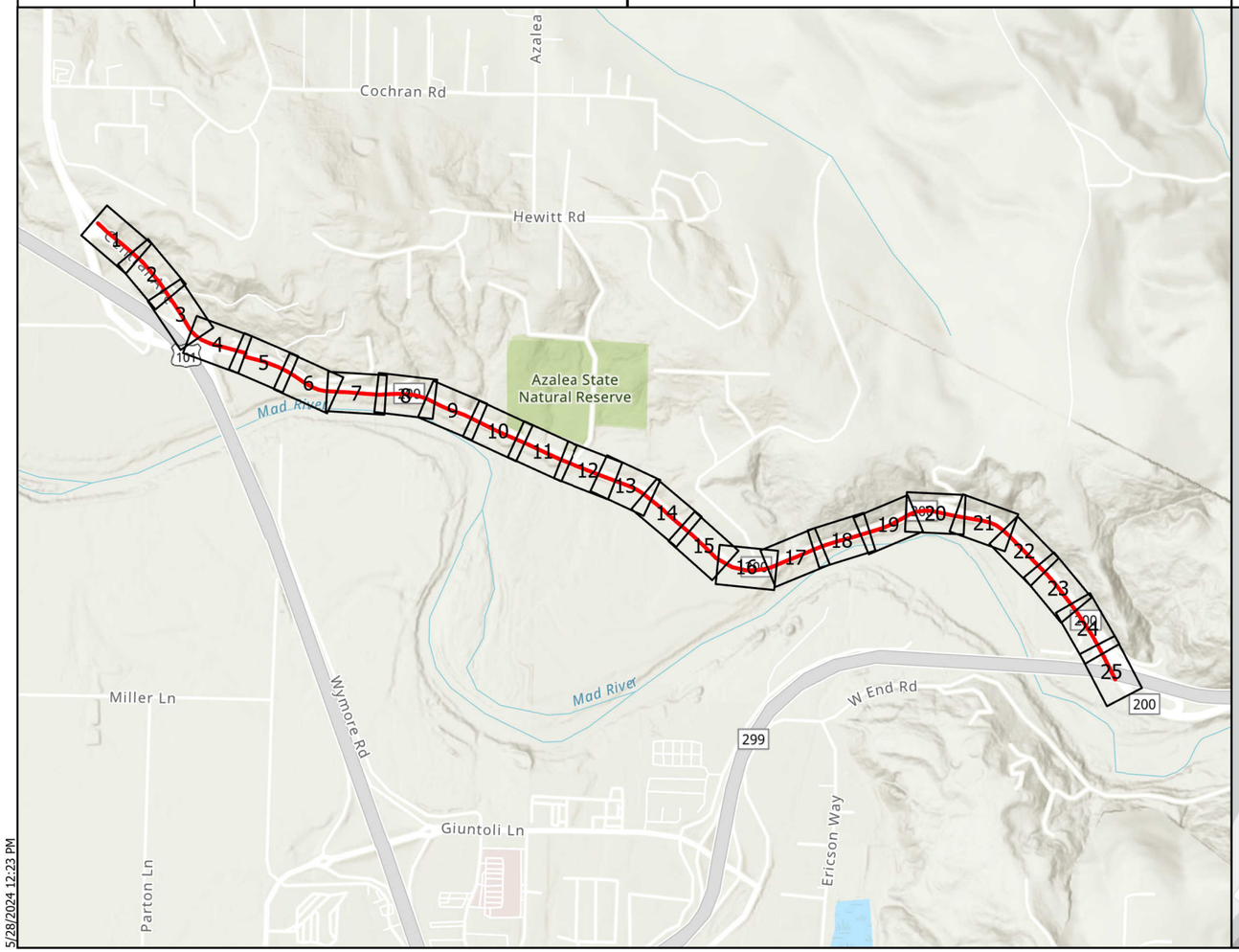

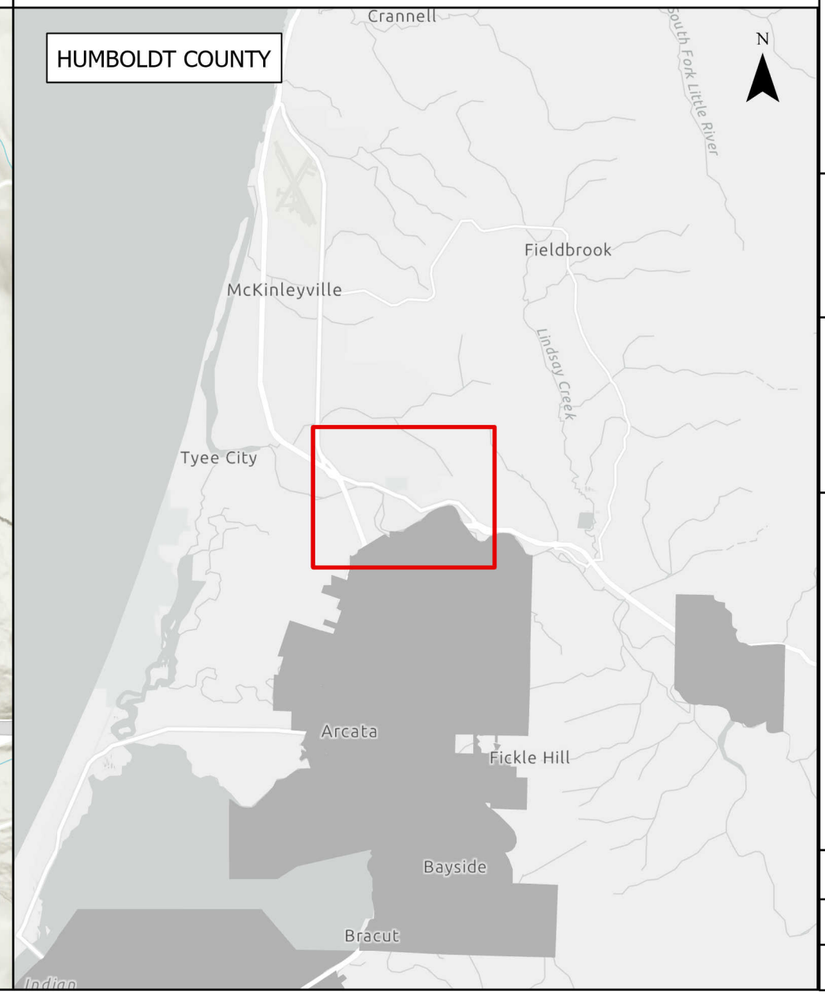

PERMIT ISSUE: 5/28/2024

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REGISTERED PROFESSIONAL ENGINEER
BALTHASER A. BRUNCKHORST
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EXP. 6/30/2024
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HUMBOLDT COUNTY

TRINIDAD TO ARCATA

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SYMBOLOGY:

EXISTING:

- Gas Manhole
- Gas Meter
- Gas Valve
- Electrical Manhole
- Electrical Meter
- Electrical Pedestal
- Electrical Vault
- Electrical Cabinet
- Water Hydrant
- Water Manhole
- Water Meter
- Water Valve
- Water Vault
- Sanitary Sewer Manhole
- Sanitary Sewer Other
- Telecom Manhole
- Telecom Pedestal
- Telecom Vault
- Telecom Cabinet
- Traffic Control Light
- Traffic Control Manhole
- Traffic Control Other
- Traffic Control Vault
- Traffic Control Cabinet
- Storm Sewer Grate
- Storm Sewer Manhole
- Storm Sewer Drain
- Light Pole
- Utility Pole w/Light
- Utility Pole
- Electric Line
- Gas Line
- Sanitary Sewer Line
- Storm Sewer Line
- Telecom Line
- Traffic Line
- Water Line
- R/W Right of way
- ESMT Easement

- EOP&CURB Curb and Gutter
- Dirt
- DRIVE Driveway
- EOP Edge of Pavement
- Gravel
- S/W Sidewalk
- Centerline
- Fence
- Tree
- Forest
- Contour Lines
- Wetlands

PROPOSED:

- HH Proposed Vault
- Bore Pit
- Match Line
- Proposed Conduit

ABBREVIATIONS:

CL	Centerline	MMV	Meet Me Vault
CMP	Corrugated Metal Pipe	MON	Monument
CO	County	NO	Number
CONC	Concrete	PRK MTR	Parking Meter
CSG	Casing	P/L	Property Line
CT	Count	PED	Pedestal
CTV PED	Cable TV Pedestal	PED-X SIG	Pedestrian Crossing Signal
CULV	Culvert	PI	Point of Inflection
DBH	Diameter at Breast Height	PKG	Package
		PVC	Polyvinyl Chloride
D.D.	Down Drain	RCB	Reinforced Concrete Box
DEPT	Department	RCP	Reinforced Concrete Pipe
DIA	Diameter	RD MEM	Roadside Memorial
DIR	Directional	REQD	Required
DIST	District	RGS	Rigid Galvanized Steel
DOC	Depth of Cover	ROW	Right of Way
DOT	Department of Transportation	RR	Railroad
		RR HUT	Railroad Signal Hut
DWG	Drawing	SCB	Sprinkler Control Box
DWY	Driveway	SD	Storm Drain/Curb Inlet
E MH	Electric Manhole	SDMH	Storm Water Manhole
E MKR	Electric Line Marker	SEC.	Section
E PED	Electric Pedestal	SF	Silt Fence
E VLT	Electic Vault	SMH	Sanitary Sewer Manhole
EM	Electric Meter	SP	Splice
ENC	Encased	SS CO	Sanitary Sewer Clean Out
ENG	Engineering	SS LIFT	Sanitary Sewer Lift Station
EOP	Edge of Pavement	STA.	Station
EPB	Electric Pull Box	STD	Standard
EXIST	Existing	STR	Section Township Range
FH	Fire Hydrant	SWPPP	Storm Water Pollution Prevention Plan
FO	Fiber Optic		
FO MH	Fiber Optic Manhole	SWT MCH	Switch Machine
FO MKR	Fiber Optic Line Marker	T HH	Telecom Handhole
FO VLT	Fiber Optic Vault	T MH	Telecom Manhole
FOC	Fiber Optic Cable	T MKR	Telecom Line Marker
FS	Filter Sock	T PED	Telecom Pedestal
G MH	Gas Manhole	T VLT	Telecom Access Vault
G MKR	Gas Line Marker	T.P.	Trench Plug
G SD	Grated Storm Drain	TCB	Traffic Control Box
GALV	Galvanized	TCE	Temporary Construction Easement
GEO SRV MKR	Geodetic Survey Marker	TCV	Traffic Control Vault
GM	Gas Meter	TRF MH	Traffic Control Manhole
GV	Gas Valve	TSP	Traffic Signal Light
GWMW	Groundwater Monitoring Well	TYP	Typical
		UG	Underground
HDPE	High Density Polyethylene	UNK MH	Unknown Manhole
		UNK PED	Unknown Pedestal
HH	Handhole	UNK UTL MKR	Unknown Utility Marker
HWY	Highway	UNK VLT	Unknown Vault
IB	Inlet Barrier	USACE	United States Army Corps Of Engineers
ILA	In Line Amplifier		
INC	Incorporated	UTL LP	Utility Light Pole
INT	Intermediate	UTL P	Utility Pole
L/A ROW	Limited Access Right of Way	VDOT	Virginia Department of Transportation
LF	Linear Feet	VLT	Vault
LOC MKR	Locating Marker	VP	Gas Vent Pipe
LP	Light Pole	W MH	Water Manhole
MAX	Maximum	W MKR	Water Line Marker
MB	Mailbox	W SPG	Water Spigot
MH	Manhole	W VLT	Water Vault
MIN	Minimum	WM	Water Meter
MIT	Mitigation	WV	Water Valve
MKR	Marker	X-GATE	Crossing Gate
ML	Maintenance Limits	YRD L	Yard Light

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REVISIONS

DATE	REV	DESCRIPTION

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HUMBOLDT COUNTY

ARCATA TO TRINIDAD

T.02

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CONSTRUCTION NOTES

UNDERGOUND CONSTRUCTION

CONDUIT INFRASTRUCTURE CONSTRUCTION

1. RIGHT-OF-WAY PROTECTION AND RESTORATION

1. Contractor shall comply with requirements stipulated by relevant authorities having jurisdiction (City, County, State and Federal), and shall minimize damage to rights of way and ensure all clean up and restoration meets or exceeds such jurisdiction specifications, with all debris and waste removed at Contractor's cost/expense
2. Contractor shall comply with all Environmental Protection agency requirements (State and Federal) and ensure compliance on all projects.

2. MATERIALS

1. CONDUIT
1. HDPE is the default choice for underground conduit, minimum wall thickness SDR-11. The properties and dimensions shall be in accordance with ASTM F2160 standard specification for Solid Wall High Density Polyethylene (HDPE) Conduit unless otherwise approved by Company Project Manager permitting authority. Duct size and number of ducts will be specified on the Engineering Workprints, purchase order or scope of work issued to Contractor. All materials supplied and used by contractors must approved by Company Project Manager.
2. Conduit shall be installed by pulling the duct directly from reels on reel trailers.
• Note: This will ensure as little waste as possible of the Duct, as well as less stress on duct and safer for crew members.
3. Crews will NOT pull duct off reels prior to installing unless there is absolutely no physical way to get a reel trailer set up safely.
• Note: having to shut down a lane to accommodate the reel trailer for pulling duct or any other, other than normal solution, does not meet the criteria of "no physical way"
• Once Duct is in the HH, MH, and or site, etc., they will all be sealed by using the proper duct plugs.
• Photos with Solocator will be taken per written standard. See OSP.1012 Standards Bulletin for further detail.

3. MANHOLES

Manholes provided by contractors must meet Bellcore standards and specifications and be approved by Company Management. All manholes will conform to AASHTO (American Association of State Highway and Transportation Officials) H-20 loading, traffic rated standards.
GPS will be taken at every Manhole placed. Photos with Solocator will be taken at every placed manhole per written
standard. See OSP.1012 Standards Bulletin for further detail. And as required by SOW.

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TRINIDAD TO ARCATA

GN.01

2/27/2024 11:05 AM

CONSTRUCTION NOTES

HANDHOLES

Handhole type and manufacture will be specified by COMPANY in the scope of work and the Contractor will be required to purchase and use those for the specific build
Handholes for slack use will be a minimum of 36 inches in depth, 48 inches in length and 30 inches in width Handholes used for splice locations will be a minimum of 48 inches in
depth, 60 inches in length and 36 inches in width
These and any Handhole used on a COMPANY construction project shall be, at a minimum, A Tier 22 with a load rating of 22,000 lbs. minimum If for any reason the contractor is required to acquire COMPANY Handholes, they will meet the above requirements as well as, meeting the Bellcore standards and specifications and be approved by Company Management. All handholes will conform to AASHTO (American Association of State Highway and Transportation Officials) and if required to be in the street or a location where large weight vehicles may sit on and not just cross over them, then they must also be upgraded to a H-20 load rating, traffic rated standards. GPS points will be taken at every Handhole placed Photos with Solocator will be taken at every placed handhole per written standard. See OSP.1012 Standards Bulletin for further detail. And as required by
SOW

SPECIAL DESIGN AND MATERIAL CONSIDERATIONS

1.The contractor shall be responsible for the physical location of ALL foreign utilities within the right-of-way before digging in the vicinity in accordance with local Utility Protection Standards. Any damages to other utilities will be the responsibility of the contractor. Contractor will also be responsible for red-lining all utilities on as-builts
2.Steel pipe shall be considered where obstructions such as buried utilities or other facilities run parallel to the proposed running line and have less than 2 feet of separation.
3.GSP, Steel or PVC Schedule 80 conduit will be proposed for housing HDPE or innerduct at Railroad crossings, river crossings, culvert crossing and other obstacles of the same type crossings.
4.If these methods are used the conduit should extend a minimum of five feet past the edge of the culvert or headwall.
5.All sweeps and field bends and or turns tighter than a 36” radius will require factory fittings at all times

METHODS OF PLACEMENT

PLOWING
1. All OSHA and other governing agencies rules and regulations will apply and be followed
2. Plowing can be considered as an alternative construction method when conditions and governing authorities permit.
3.When plowing is utilized as a construction method, the equipment used by the contractor shall be such as to cause the minimum displacement of the soil. Damage to banks, ditches, driveways, and roads
4.GPS points will be taken at the start and stop of the Plow, every 150 feet along a straight and continuous plow line, and at any and all changes in direction to include drift up or down or side to side in the ROW to ensure running line accuracy.
5. Photos with Solocator will be taken as required in the scope or as needed

TRENCHING/OPEN CUTS

1. All OSHA and other governing agencies rules and regulations will apply and be followed
2. When trenching and open-cutting is an option or requirement, the contractor shall excavate by machine trench, backhoe, hand, etc.
3. The network trench shall be as straight as practicable.
1. The bottom of the trench shall be smooth and free from any sharp edges.
2. The trench shall be kept clear of debris and loose rock.
3. All changes in trench grade shall be gradual
a. Note: The vertical change in grade should not exceed (1.5') within (6') in length.
1. Prior to duct placement in the trench, the duct shall be bundled, tied and or bound by an approved method to eliminate the possibility of the duct twisting and tension shall be applied to the duct to eliminate waving in the trench.
2. Duct shall be placed in the center of the excavation and as straight as practicable. Excessive waving of the duct within the trench will not be allowed.
3. All open trenches and other excavations shall be backfilled at the end of each working day. Any open trench or excavation not backfilled may be covered as approved by the governing authority's rules and regulation
4. GPS points will be taken at the start and stop, every 25 feet along a straight and continuous trench line, and at any and all changes in direction to include drift up or down or side to side in the ROW to ensure running line accuracy.
5. Photos with Solocator will be taken as required in the scope or as needed

BORING

1. All OSHA and other governing agencies rules and regulations will apply and be followed
2. When Boring is allowed the contractor shall use Directional Boring as the preferred method.
3. The contractor will be responsible for all unsuccessful bore attempts. All unsuccessful bore attempts will be filled with grout or as required by the governing authority.
4. The contractor shall not drain any excess material into storm, sanitary systems, ditches or anywhere on the Right of Way.
5. When crossing all deadly utilities they must be daylighted by potholing to verify there is sufficient separation from the Company duct, or if paralleling within 10’ horizontally.
1. Note: separation is 24” without written authorization from COMPANY or the governing agency or agencies.
6. All verifications will be physical verification on site of the actual utility
7. Bore logs will be kept and document the start, the stop and every 10 feet in between.
8. The contractor shall submit all boring logs and profiles to Company
9. In general the vertical change in grade shall not exceed one and a half feet (1.5') in six feet (6') in length.
10. GPS points will be taken at the start and stop of every bore, every change of stem (i.e., every 10 feet when using 10-foot stems, 15 feet when using 15-foot stems etc.) along a straight and continuous bore line, and at any and all changes
in direction to include drift up or down or side to side in the ROW to ensure running line accuracy and depth accuracy.
11. Photos with Solocator will be taken as required in the scope or as needed

GENERAL RESTORATION

1. All OSHA and other governing agencies rules and regulations will apply and be followed
1. All rock and debris brought to the surface and not used during backfilling operations shall be removed and disposed of in an appropriate manner.
2. Improved landscape, lawns, shrubs, and hedges removed or damaged shall be replaced in like kind.
4. All areas disturbed by the construction activities in public rights-of-way shall be restored and seeded per the specifications of the governing authority.
5. The contractor shall promptly repair or replace any other property damaged during construction.
6. Contractor shall remove all duct installation debris including construction spoils and remaining installation materials from any public or private properties.
a. NOTE: Such material to be removed would also include litter generated by the construction crews.
7. No debris or litter should ever be disposed of in a trench or other telecommunication excavation. The contractor is responsible for the proper disposal of all soil, concrete, asphalt or other debris.
8. No asphalt shall be permitted in the backfill.
9. Photos with Solocator will be taken before, during and after restoration and as needed

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2/27/2024 11:00 AM

CONSTRUCTION NOTES

PAVEMENT RESTORATION

1. All OSHA and other governing agencies rules and regulations will apply and be followed
2. It is recommended that Cobblestone or old brick in historic areas, be numbered, photographed, removed, and then stored for replacement. Care must be taken to restore historic areas to their original condition and "look."
3. Pavement, driveways, and sidewalks shall be restored to their original or better condition within five (5) business days or as soon as practicable, following duct placing operations.
4. The backfill within the roadway shall be placed and compacted in not more than six-inch (6") lifts from the bottom to the finished grade.
5. Photos with Solocator will be taken before, during and after restoration and as needed

BACKFILL

1. The trench shall be backfilled and compacted to the satisfaction of Company and local authorities, promptly behind duct placement.
2. The backfill shall be the trench excavated materials, provided the excavated materials are free from debris, rocks measuring less than two inches (2") in diameter and other unsuitable materials.
3. Backfill within the roadway shall be placed and compacted per the governing authority specification or to ninety percent (90%) modified proctor in non-traveled areas and ninety five percent (95%) modified proctor in traveled areas whichever is greater.
4. Company 's engineer has the right to test the soil compaction randomly. If soils do not meet the compaction requirements, the contractor will be directed to remove fill until proper compaction is found. The contractor will not have any claim to additional time or additional costs.
5. If Company 's engineer tests 5 locations that fail compaction, then Company 's engineer can require all backfill lifts to be tested. The contractor will be required to pay for all the testing including, but not limited to, labor, equipment and lab tests.

DEPTH OF PLACEMENT

1. Except where specified in the drawings, approved by Company , or permit specifications dictate a different depth, the top duct shall be placed a minimum of Forty-two inches (≥42") below grade or as required by authority having jurisdiction with a minimum of twelve inches (12") of separation from foreign object or as required by object's owner which is greater.
2. Where the network crosses gullies, ditches, streams, rivers, and washes, the conduit will be placed at a minimum depth of forty-eight inches (48") below the bottom of the waterway unless the controlling authority requires additional depth in which case the greatest depth will be maintained.
3. Where the network route crosses railroads, the network shall be placed at a minimum depth of sixty inches (60") below the base of rail or sixty inches (60") below the paralleling drainage ditches, or at greater depths as required by permitting authorities which is greater.
4. Where the network crosses existing subsurface pipes, cables, or other structures, the network will be placed to maintain a minimum of twelve inches (12") separation (preferred to be 24" whenever possible) from the foreign object or a minimum separation as required by the object's owner, whichever is greater.
5. For special cases when minimum cover cannot be obtained due to the location of subsurface obstructions and/or other utilities, these special considerations will be acceptable, but only with Company Management approval:
a. BSP/GSP or Concrete Encased HDPE will be used with cover between 12" to 35", with Middle Mile Management approval.

COUPLER INSTALLATION

1. Barbed Couplers will be utilized and installed per manufacturer's specification, buried flush with the path/bore/trench of the conduit.
2. Barbed Couplers are the only authorized couplers for any and all COMPANY HDPE duct
3. To prevent the bundling of Barbed couplers at one location or hole and to meet requirements for depth of cover; the couplers must be staggered and sequenced every six inches between multiple conduits and should not overlap or touch another coupler.
4. If micro duct is used (i.e., 7way, 6way, 4way etc.,) a rubber boot will be applied over the micro duct couplers and then heat shrunk for added strength both vertically and horizontally, as well as,sealing the staggered couplers from foreign substances
5. All locations of barbed couplers should be noted and correspond to a depth and station number on the as-built drawings.
6. All Couplers at all Coupler locations will be photographed with Solocator and provided as a deliverable to Company , to include but not limited to the GPS location, station number and a number of all couplers, barbed and or micro coupler, at each location. And as required by SOW.
7. See OSP.1012 Standards Bulletin for further detail.

CABLE MARKER SIGNS

Marker Poles
1. Marker Poles will be set at each Splice, Handhole and Manhole location.
a) The cable marker posts shall be placed whenever possible within a one-
foot offset from the back of the Handhole/Manhole, centered on the back side of the Handhole/Manhole between it and the outside ROW line
b) if due to permitting agency rules, Marker Poles are not allowed then
alternative means will be used to mark these assets.
c) Any deviation from Marker Poles to other devices will require COMPANY written approval.
2. Marker poles will be set at all crossings (i.e., road, river, rail, etc.)
3. Marker poles will be set at all changes of direction in the running line.
4. Marker Poles will be set in such a way so there is never more than 500lineal feet between any two Marker Poles.
5. Marker Poles will be set in such a way that no matter where you stand onthe ROW, you will be able to see a Marker Pole
6. GPS points will be taken at every placed Marker Pole
7. Photos with Solocator will be taken at every placed marker Pole And as required by SOW.

DEPTH OF MARKER SIGN

1. Contractor shall bury the marker post as per Manufacturer's specification, at twenty-four inches (24") below grade and ensure the cross member has been added to ensure stability and the Marker Pole can't be lifted.
2. The cable marker posts shall be placed whenever possible directly over the the network running line or as close as the permitting authority allows.
3. Any offset shall be permanently noted on the space provided by the cable marker sign.
4. All Marker Posts are to be GPS'd

TRACER WIRE

1. When a trace wire is required, a minimum of a 10-gauge poly coated solid copper tracer wire will be placed with every linear foot of duct placed,regardless of the type of construction
2. If armored cable is used, then the locate wire from the enclosure to the Locate test Station pole will be poly coated solid # 6.
3. Locate marker posts, flush mount finks, manholes, handholes, and all other tracer access points will be connected to the tracer/ground wire for locating buried facilities.
4. Tracer wire connectivity tests must be conducted by the contractor to ensure the entire plant is locatable.
5. Damaged tracer/ground wires will be repaired immediately with minimal connectors.
6. COTT or other Company acceptable test stations will be placed at each manhole/handhole, using the ground tree model to ground tracer wire at splice locations. see OSP.1003 – Splice Point Grounding for Locate Test Point Stations in Appendix A

PROOFING DUCT

1. All conduits, regardless of size will be verified for ovality, turning angle, and damage by proofing the duct per manufacturer specification and or with an 85% space capacity mandrel whichever is greater.
2. The mandrel will be made of metal and not to exceed the length of 3 times the diameter of the duct.
3. Proofing of the duct shall be completed with air pressure of at least 50 PSI and no more than 150 PSI or the max duct PSI whichever is less.
4. All proofing results must be witnessed and documented by an appropriate Company representative.
5. Damaged duct should be repaired immediately with minimal couplers.

SEALING DUCTS

All ducts must be properly sealed per manufacturer specifications with Duct plugs or an equivalent approved by the Company Project Manager. Ducts or duct plugs should be labeled with the direction of the conduit path.
All ducts with FOC present must be properly sealed with a half Moon or equivalent plug approved by the Company Project Manager.

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CONSTRUCTION NOTES

MANHOLE AND HANDHOLE CONSTRUCTION

1. Handholes and manholes shall be installed by the contractor as designated in the construction drawings. Installation shall include all grouting, installation of extension ladders, required extension rings, and all related work for the complete installation of the structure. The design loading for all man-holes and handholes shall be capable of supporting H-20 loading,
per the American Association of State Highway and Transportation Officials (AASHTO.)
2. All Intermediate Slack Vault (IEV) Hand holes will be sized to a minimum of 30" in width x 48" in length x 36" in depth and open bottom
3. All Network Splice Vault (NSV) HHs will be sized to a minimum of 36" in width x 60" in length x 48" in depth and open bottom.
4. The handholes shall be set on a base minimum thickness of six inches (6") or as provided in manufacturer's specifications consisting of clean gravel or crushed stone with a minimum diameter of three-quarter inch (3/4") and a diameter maximum one and one-half inch (1.5").
5. The ducts shall enter and leave hand holes exactly opposite each other within the handhole to facilitate the cable coils and/or splice closures. When ever possible the duct will enter from underneath the Handhole, not the sides. Each duct length inside handholes and manholes shall be a minimum length of six inches (6") from the inside wall of the HH, but no more than twelve inches (12").
6. Micro duct should be a minimum length of ten inches (10") from the inside wall of the HH, but no more than sixteen inches (16") and then four inches (4") of the outer sheath should be removed to allow the unfettered access to the individual micro ducts.
7. At all splice locations the contractor shall install a 3-rod ground tree for fiber optic cable grounding in accordance with the detailed drawings provided in
Bulletin OSP.1003 – Splice Point Grounding for Locate Test Point Stations.
• Ground Trees will be GPS'd
7. In a Metro area, Handholes shall be set flush to grade or to the specifications of the governing authority or in accordance with the detailed drawings.
8. When outside a metro area, the handhole is to be buried and it should be set with a minimum of 18 inches (18") and or a maximum of twenty-four (24") cover.
9. Manholes shall be installed in the same manner as handholes with the following exceptions:
• The contractor shall not use material less than five thousand (5,000) pounds per square inch (PSI) in density to shim frames and covers.
• Frames and covers shall be installed to match existing grade and shall be
shimmed with either steel or concrete spacers.
• All manhole penetrations shall be sealed with a pre-approved non-shrink grout.
• All conduits, ducts, or casings that enter the manhole wall shall be back filled to 95% compaction by using sand and water or slurry to insure minimal settling of the pipe. This action will help eliminate damaged conduits.
11. Innerduct shall have a gradual sweep into the handholes and manholes, if the depth of innerduct bury exceeds forty-eight inches (48"). The handholes and manholes shall not be installed on steep banks or slopes where the cover cannot be leveled within a tolerance of one-inch (1") of drop to twelve
inches (12") of grade.
12. All innerduct or conduit entering the manhole shall be flush and horizontal to the hole of penetration on the manhole. To prevent settlement and conduit damage near the entry of the manholes, the soil or bottom of the trench will meet 95% compactions by the use of various backfill materials. The suggested method is sand and water or slurry.
13. Upon completion of the innerduct placement in the handhole and manholes, the innerduct shall rest freely without tension. Innerduct on each side shall be plugged and sealed as previously noted.
14. All HH's and MH's, 3 rod ground trees, duct entrances and anything else called out in 4.9 shall be photographed with Solocator and provided as a deliverable to Company . to include but not limited to the GPS location, station number. See OSP.1012 - QA Photo App Standard Bulletin.

SPECIAL CONSTRUCTION CONSIDERATIONS

RAILROAD CROSSINGS

1. All work shall be performed in accordance with Railroad authority and other permitting agencies.

STREAM AND CANAL CROSSINGS

1. Contractor shall comply with all Federal, State, county and local laws, rules, regulations and Company obtained permits when crossing lakes, canals, streams, or river crossings.
2. Restoration and erosion control shall be performed as required by the agency having jurisdiction and as approved by Company .

GAS LINE CROSSINGS

1. Extra care must be taken when working around gas lines.
2. All deadly utilities will be exposed to verify 24" separation from Middle Mile Management duct package when crossing
3. All placements are subject to additional requirements in accordance with standards and specifications of the gas line owner and permitting authorities.

ROCK CONSIDERATIONS

NO ROCK CLAUSE:

• NO ROCK CLAUSE Contracts and RFPs must clearly define whether rock clauses are applicable to a specific project or not.
• For contracts that have no allowances for rock considerations, the contractor is responsible and fully accountable for all construction regardless of the type and amount of rock encountered during construction.

DRAINAGE CULVERTS

1. If underground drainage tile is encountered as the network is installed, the network shall be installed as per drainage district or other governing authority specifications.
2. The contractor consistent with the pre-construction conditions and materials will repair all damaged drainage tiles. In case of a dispute regarding the proper repair of damaged tile lines, the repair specifications of the county Soil and Water Conservation District will be followed.
3. The contractor will be responsible for repair of tile damaged by the construction.
4. Repairs made to damaged tile line must enable the tile lines to operate as well or better after the repairs are completed as before they were damaged.
5. The contractor shall immediately repair any tile lines known to be damaged. Permanent tile line repairs will be made within two (2) days of the date the damage occurred, weather permitting.
6. Where a tile is damaged, the contractor must station the location and indicate the location on the red line as-built
7. Prior to back filling, a Company representative and the governing authority must approve of the final tile repair.

EXISTING UTILITIES AND SUBSURFACE OBSTRUCTIONS

1. Prior to excavation commencement, contractor shall obtain a dig ticket by calling the appropriate Utilities Protection Center number per applicable jurisdiction (state, county, city, federal).The Contractor shall obtain and maintain the Call Before you Dig Programs in all construction areas. Contractor shall also notify all existing utility owners not participating in the CBUD Programs. For Company approval and inspection, contractor shall document and maintain records that evidence the notification of all utility owners no later than seventy-two (72) hours prior to the start of construction. The records shall include date, time of day, name of individual contacted, name of companies contacted, telephone number, and confirmation number.
2. Damaged Utilities: Any utility damage will be reported to the utility owner and Company immediately. This includes any damage to Company duct or cable. Contractor will fully cooperate with Company to facilitate any repairs necessary and provide complete documentation of all activities and restoration.

FENCING

1. Safety fencing shall be erected, around the contractor's excavations and or open holes and equipment left open or out over night or weekends on the ROW or any publicly accessible place.
2. Safety fencing will consist of 6-foot T-Posts and high visibility plastic safety snow fence erected per local, state or federal rules and guidelines

DAILY CLEAN-UP

The contractor shall maintain a clean and hazard free work area including daily removal of all spills, unused or unacceptable excavation materials, and waste. The contractor should sweep all affected street work areas and side-walk areas daily in accordance with Federal, State, county, city and local laws, rules, regulations and standards.

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7101 COLLEGE BLVD. SUITE 400
OVERLAND PARK, KS 66210
PHONE: (913) 663-1900

vero NETWORKS

California811

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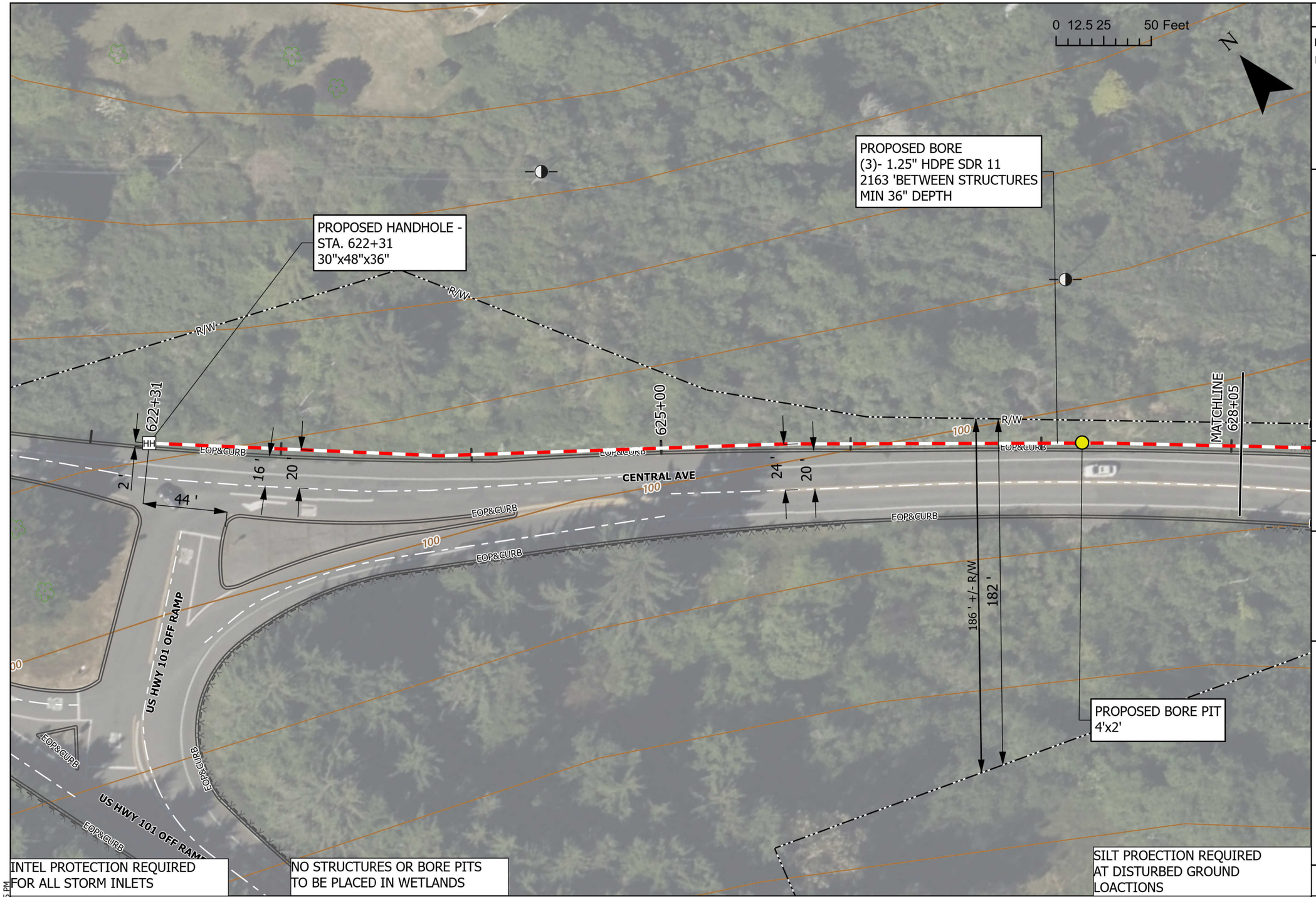
HUMBOLDT COUNTY

TRINIDAD TO ARCATA

GN.04



Scale: 1 INCH: 50 FEET

PERMIT EXPORT: 5/28/2024

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NO. C 48159
EXP. 6/30/2024
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HUMBOLDT COUNTY

TRINIDAD TO ARCATA

PL.1

5/28/2024 12:25 PM

0 12.5 25 50 Feet

N

PROPOSED BORE
(3)- 1.25" HDPE SDR 11
2163 'BETWEEN STRUCTURES
MIN 36" DEPTH

PROPOSED BORE PIT
4'x2'

SAINT MARU LN

CENTRAL AVE

MATCHLINE 628+05

MATCHLINE 633+50

23 '

19 '

24 '

23 '

102 ' +/- R/W

105 '

EOP&CURB

DRIVE

R/W

EOP

100

SEE PG TY.01
TYPICAL DETAIL "H"

INTEL PROTECTION REQUIRED
FOR ALL STORM INLETS

NO STRUCTURES OR BORE PITS
TO BE PLACED IN WETLANDS

SILT PROECTION REQUIRED
AT DISTURBED GROUND
LOACTIONS

CALTRANS DISTRICT 1
628+05 TO 633+50

5/28/2024 2:00 PM

Scale: 1 INCH: 50 FEET

PERMIT EXPORT: 5/28/2024

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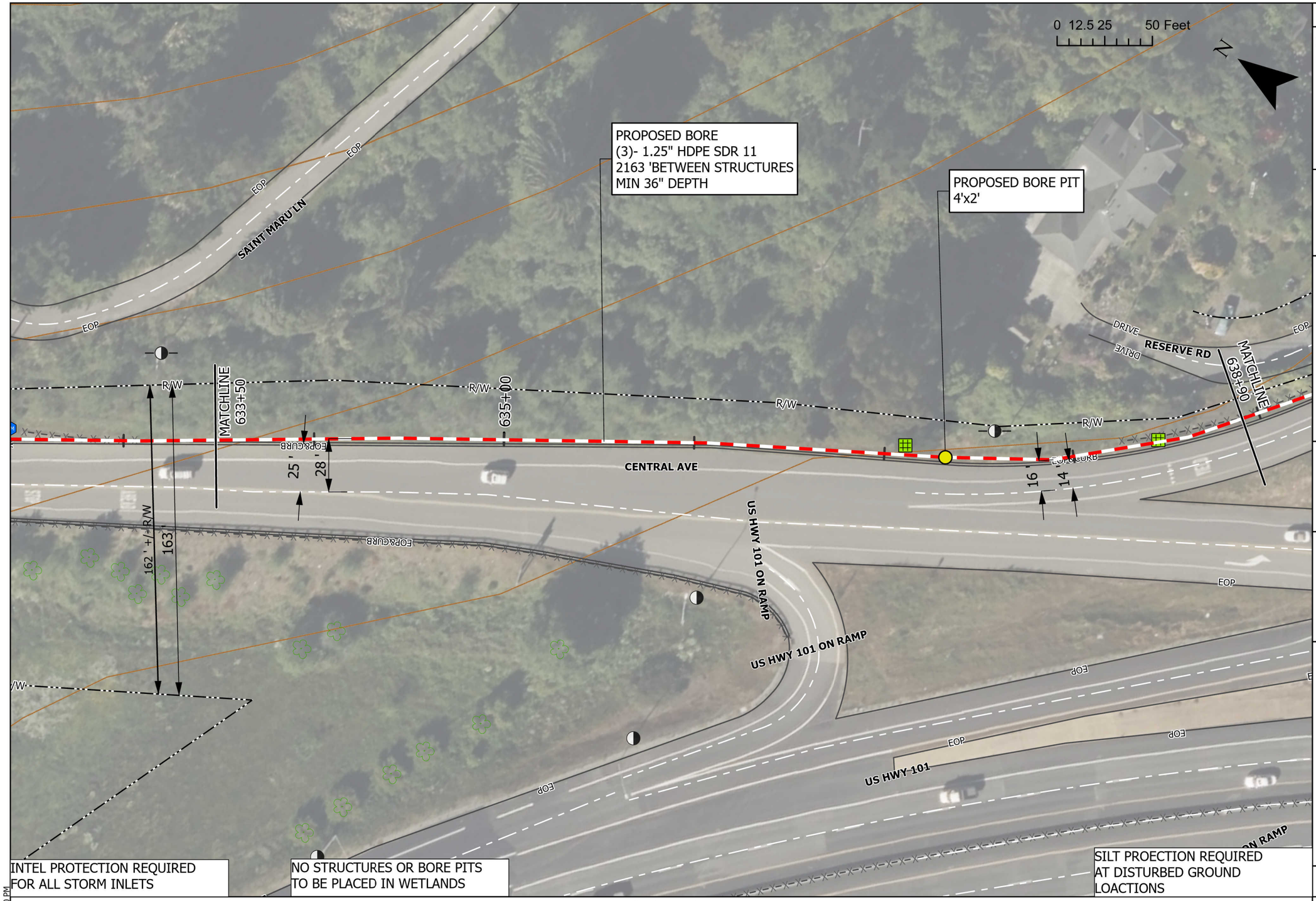
HUMBOLDT COUNTY

TRINIDAD TO ARCATA

PL.2



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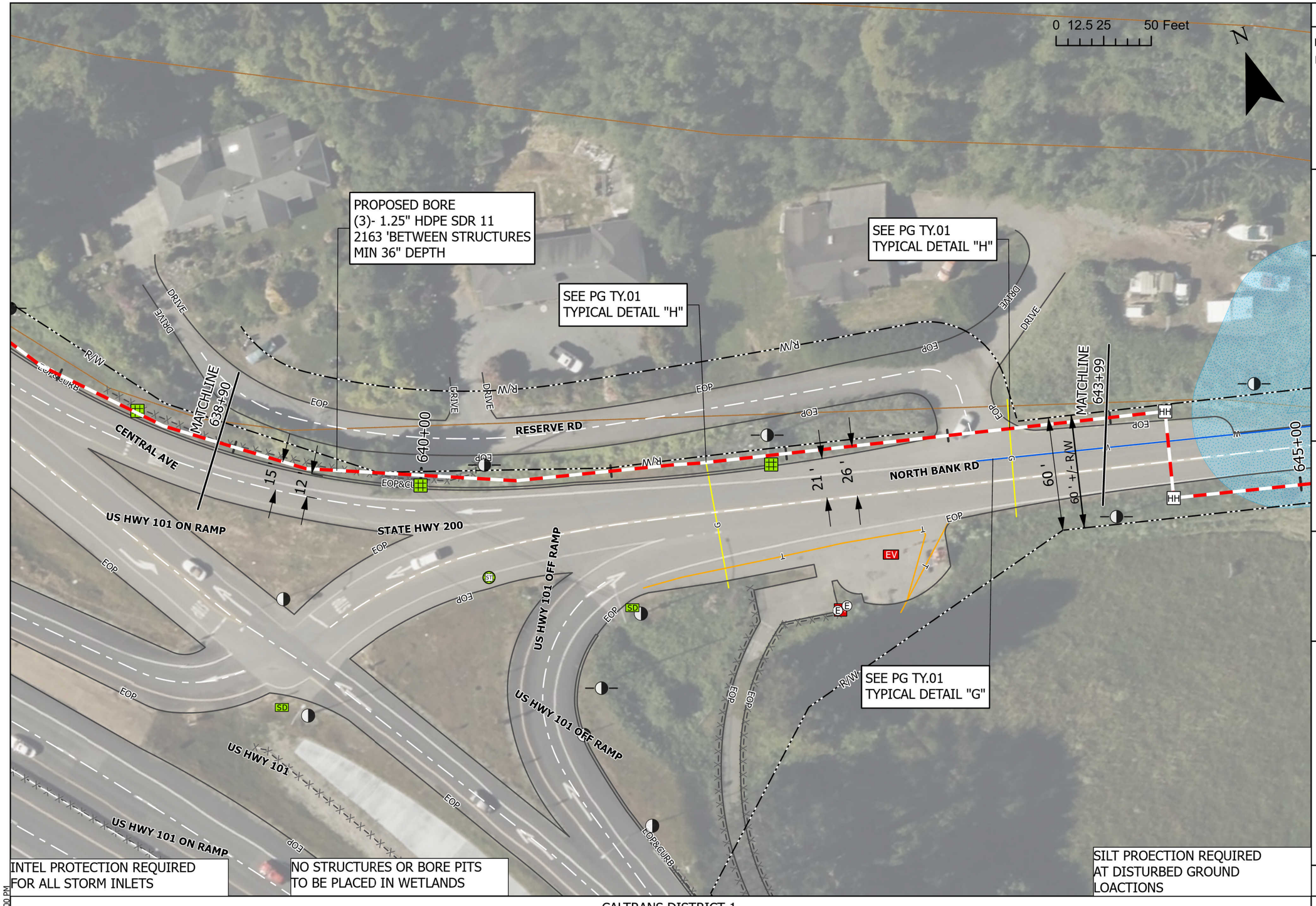
HUMBOLDT COUNTY

TRINIDAD TO ARCATA

PL.3



CALTRANS DISTRICT 1
638+90 TO 643+99

5/28/2024 2:00 PM

Scale: 1 INCH: 50 FEET

PERMIT EXPORT: 5/28/2024

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HUMBOLDT COUNTY

TRINIDAD TO ARCATA

PL.4

PROPOSED HANDHOLE -
STA. 644+25
30"x48"x36"

SEE PG TY.01
TYPICAL DETAIL "H"

PROPOSED BORE
(3)- 1.25" HDPE SDR 11
46 'BETWEEN STRUCTURES
MIN 36" DEPTH

SEE PR.01 - PROFILE 001
FOR DETAILED PROFILE

PROPOSED BORE PIT
4'x2'

0 12.5 25 50 Feet

N

JENSEN DR

NORTH BANK RD

MATCHLINE 643+99

645+00

650+00

MATCHLINE 649+96

47 '

5 '

7 '

31 '

20 '

12 '

60 ' +/- R/W

60 '

19 '

11 '

PROPOSED HANDHOLE -
STA. 644+50
30"x48"x36"

PROPOSED BORE
(3)- 1.25" HDPE SDR 11
1455 'BETWEEN STRUCTURES
MIN 36" DEPTH

INTEL PROTECTION REQUIRED
FOR ALL STORM INLETS

NO STRUCTURES OR BORE PITS
TO BE PLACED IN WETLANDS

SILT PROECTION REQUIRED
AT DISTURBED GROUND
LOACTIONS

CALTRANS DISTRICT 1
643+99 TO 649+96

5/28/2024 2:00 PM

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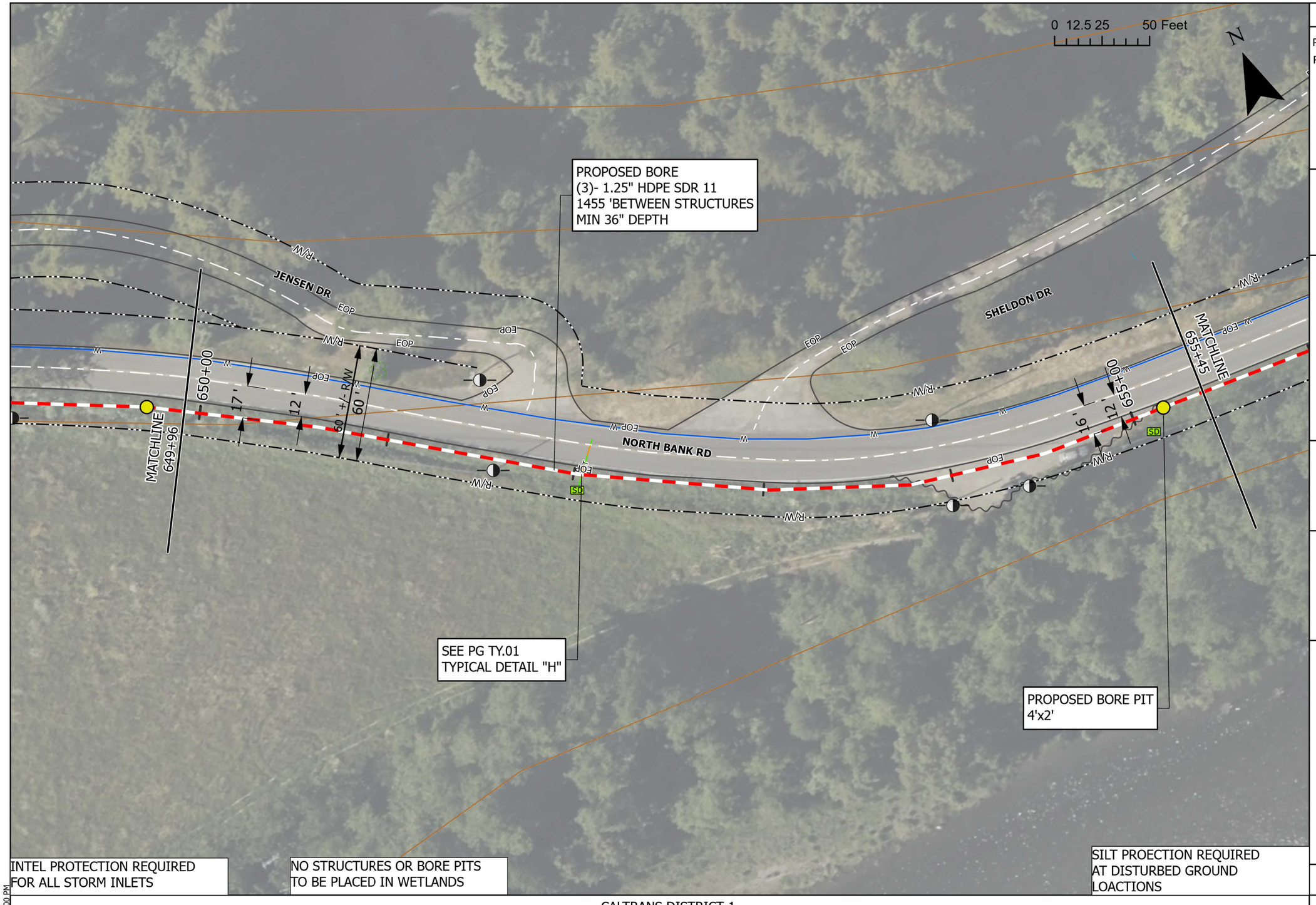
HUMBOLDT COUNTY

TRINIDAD TO ARCATA

PL.5



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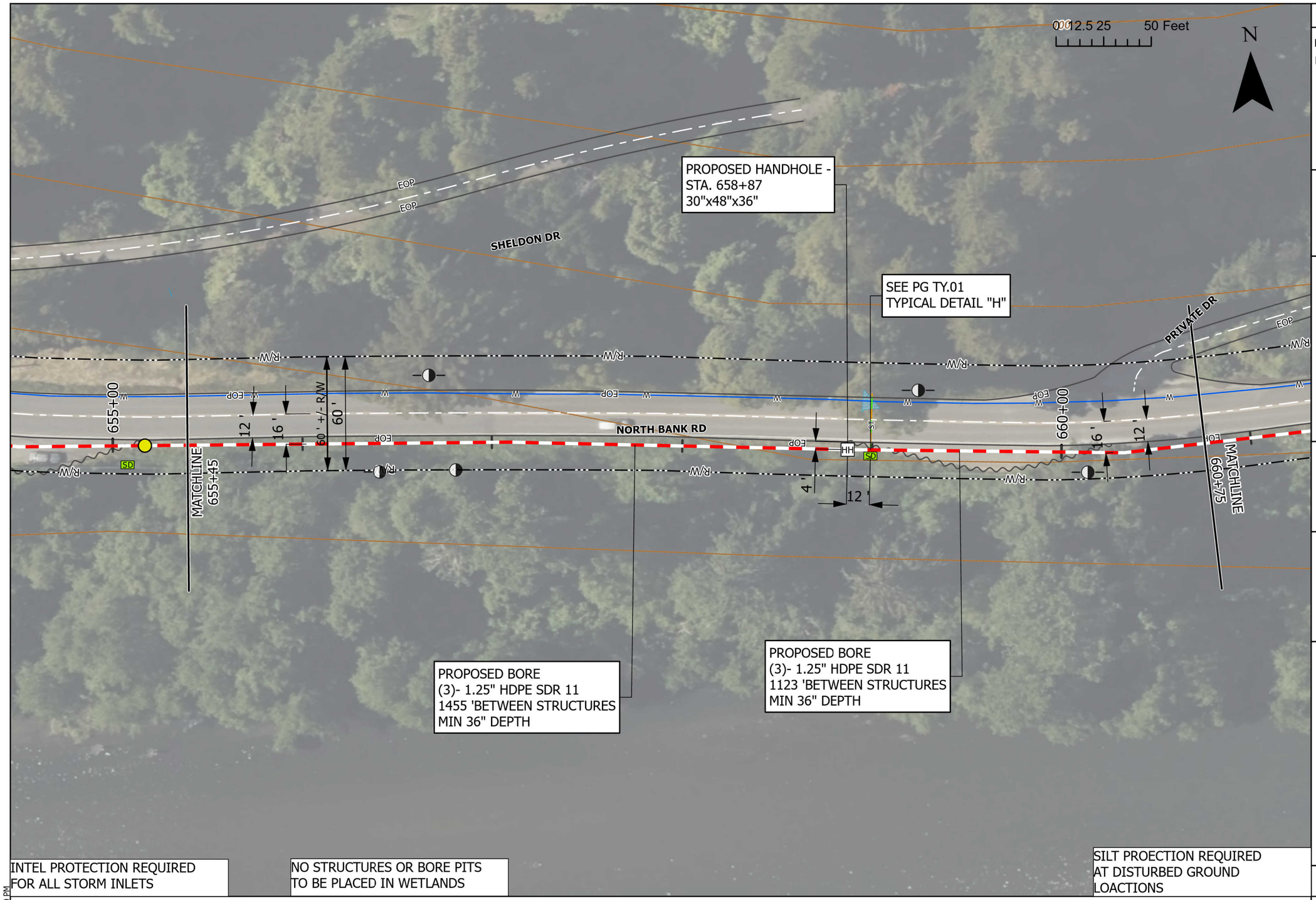
HUMBOLDT COUNTY

TRINIDAD TO ARCATA

PL.6



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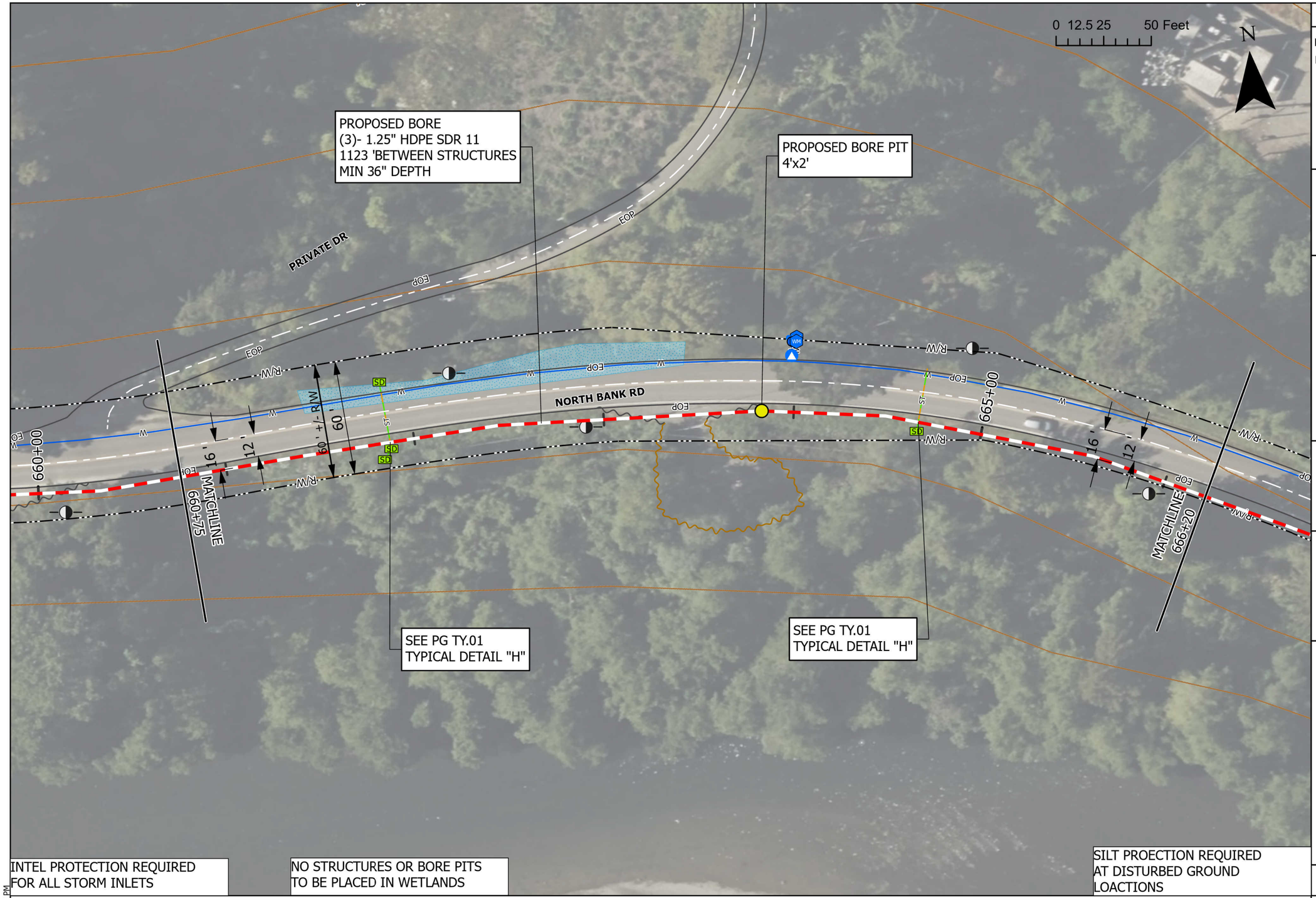
HUMBOLDT COUNTY

TRINIDAD TO ARCATA

PL.7

5/28/2024 2:00 PM



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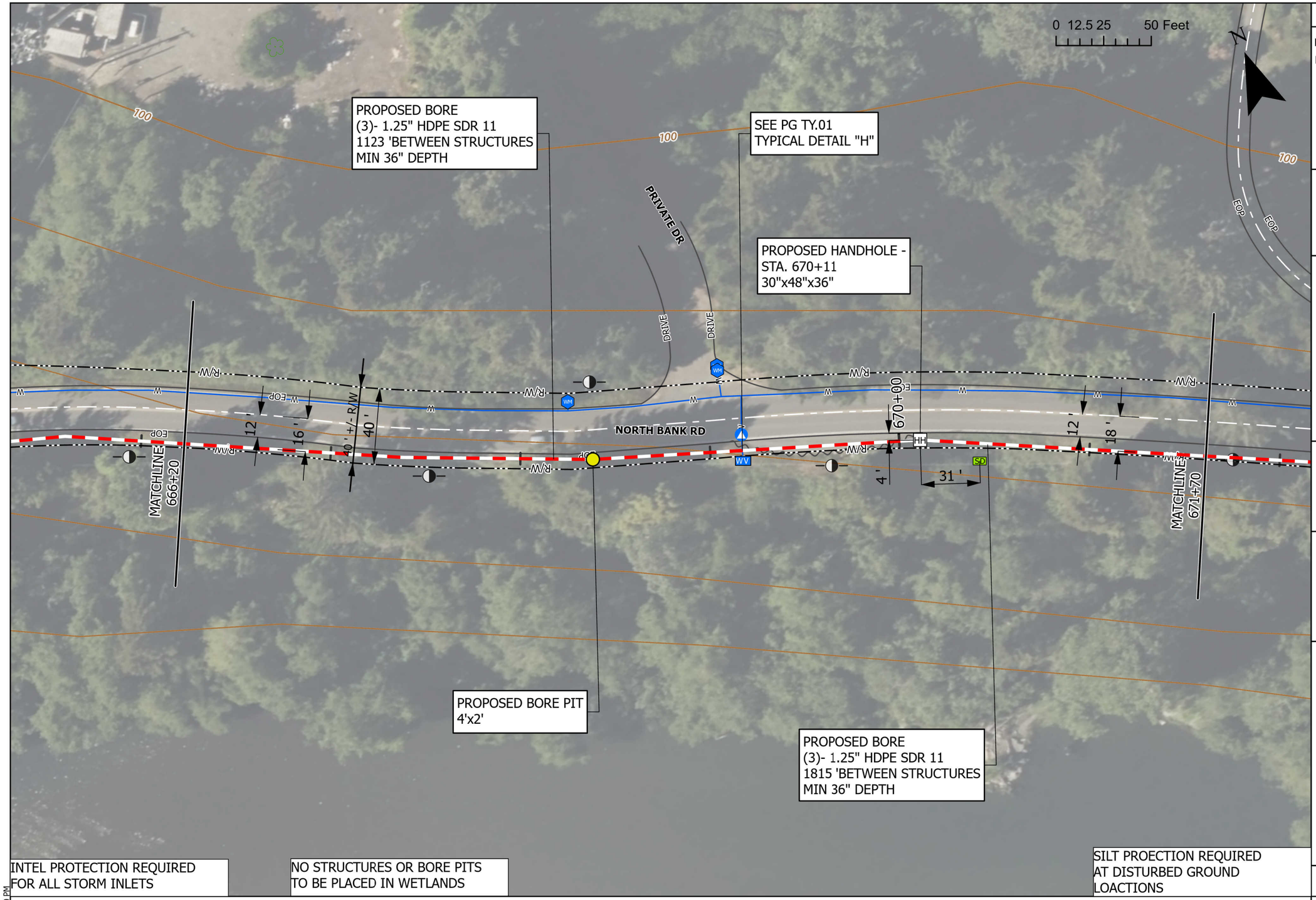
HUMBOLDT COUNTY

TRINIDAD TO ARCATA

PL.8

5/28/2024 2:00 PM



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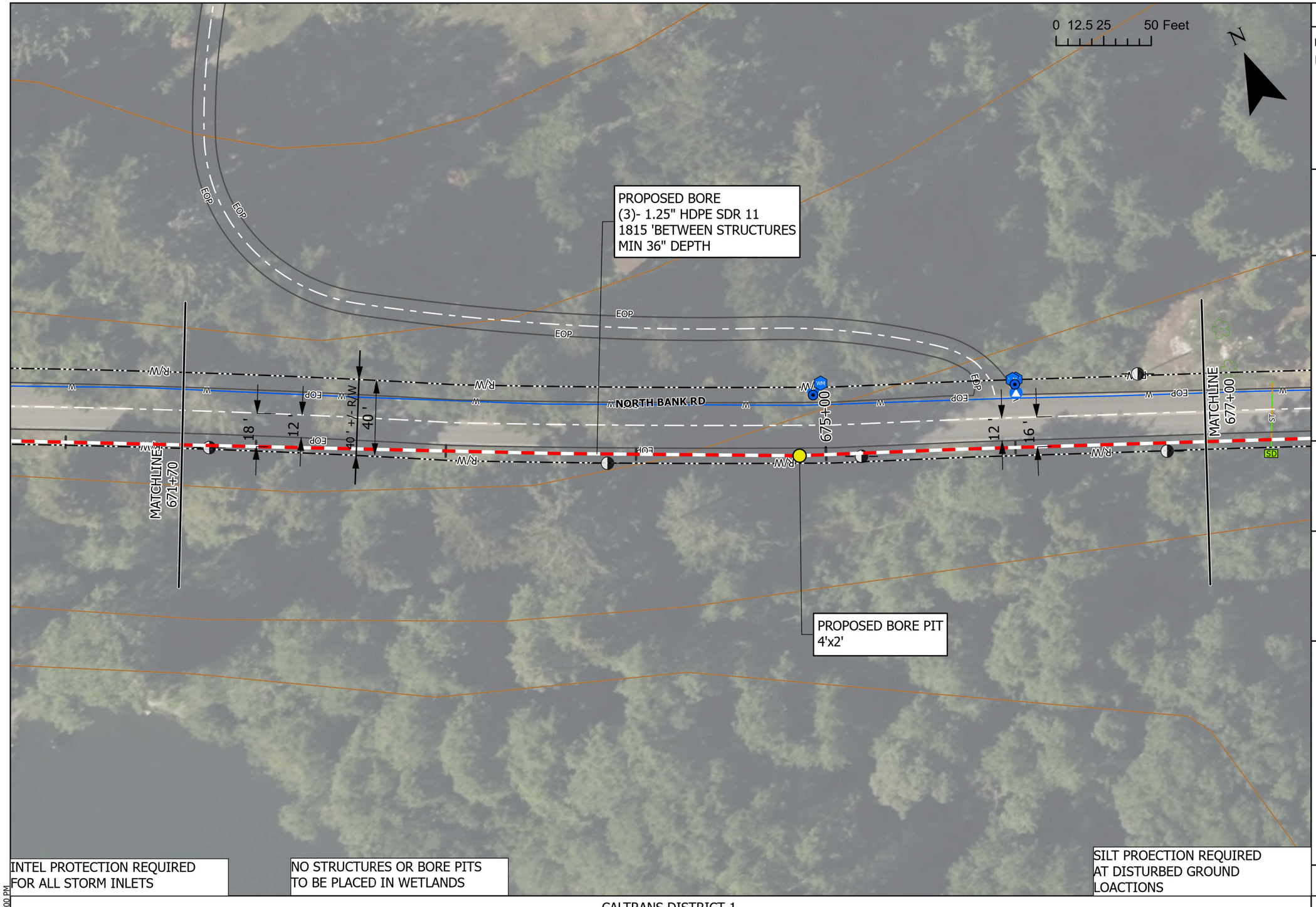
HUMBOLDT COUNTY

TRINIDAD TO ARCATA

PL.9

5/28/2024 2:00 PM



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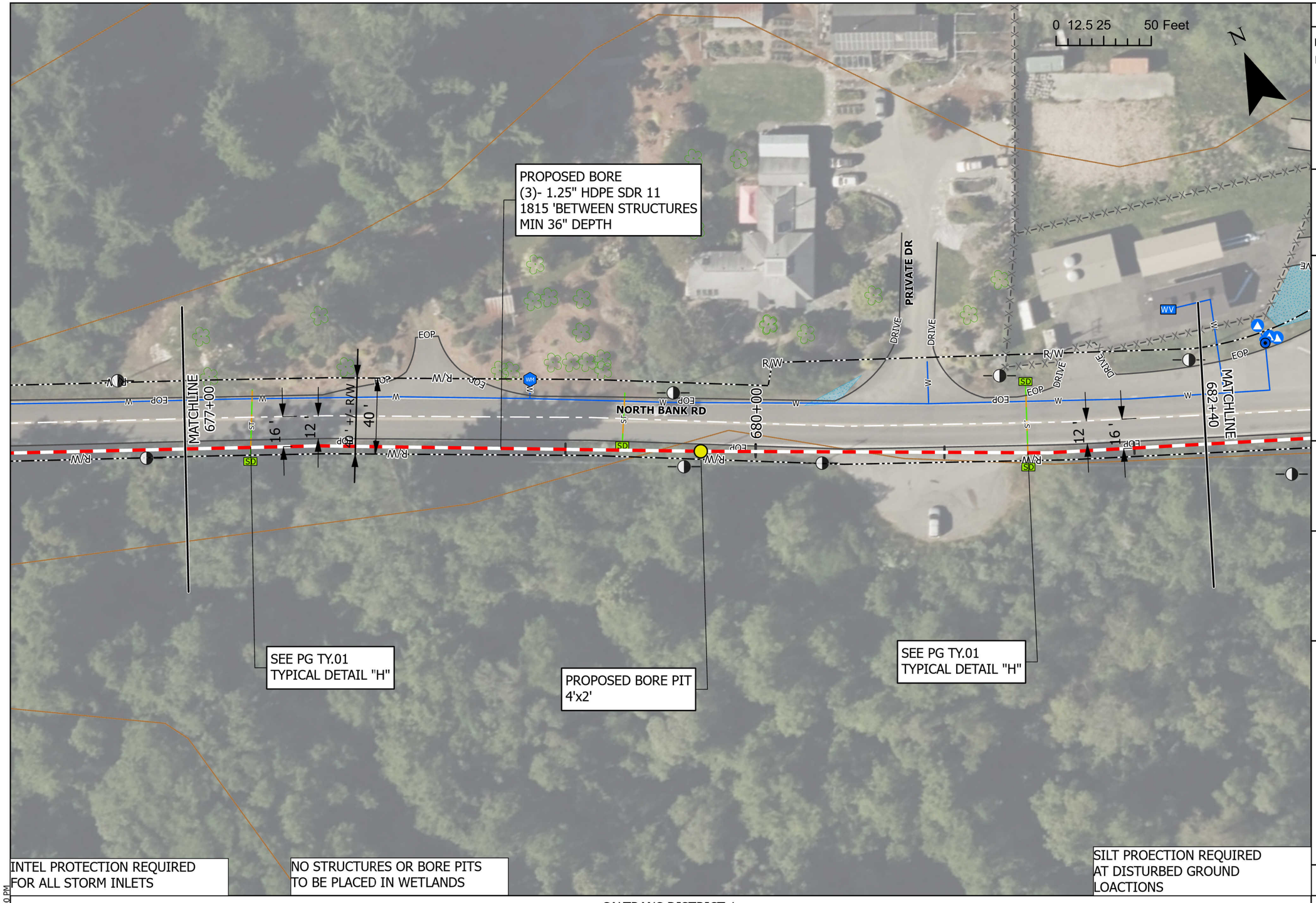
TRINIDAD TO ARCATA

PL.10

5/28/2024 2:00 PM



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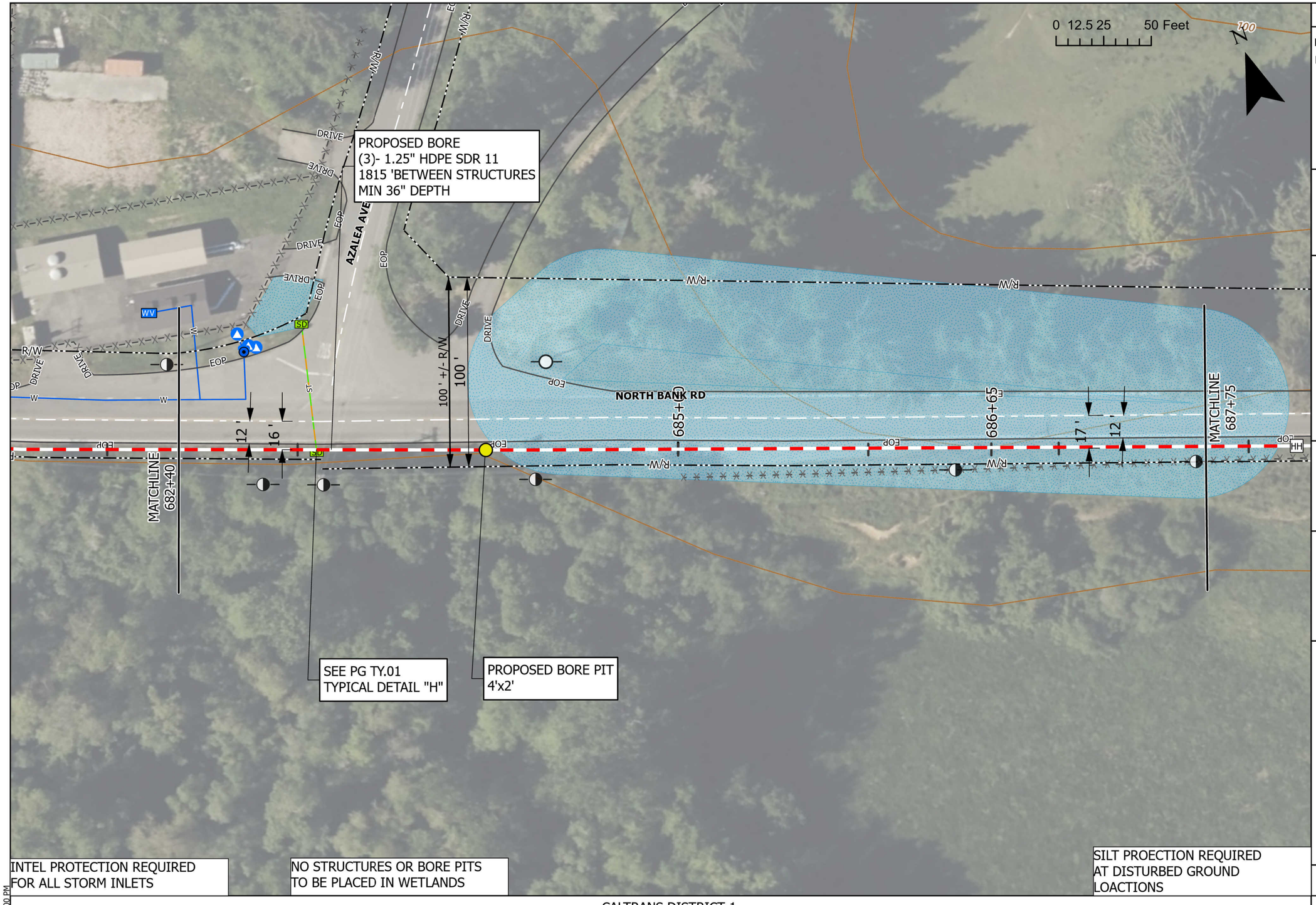
PL.11

5/28/2024 2:00 PM



INTEL PROTECTION REQUIRED
FOR ALL STORM INLETS

NO STRUCTURES OR BORE PITS
TO BE PLACED IN WETLANDS

SILT PROECTION REQUIRED
AT DISTURBED GROUND
LOACTIONS

CALTRANS DISTRICT 1
682+40 TO 687+75

5/28/2024 2:00 PM

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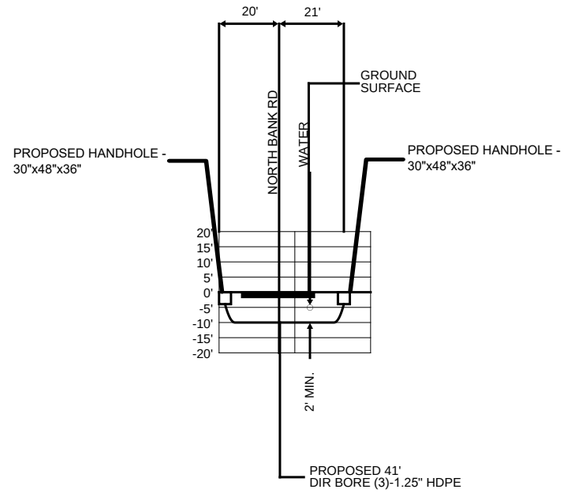
HUMBOLDT COUNTY

TRINIDAD TO ARCATA

PL.12



PROFILE 001 SEE SHEET PL.05
NORTH BANK RD
CROSSING NORTH BANK ROAD
PROFILE VIEW LOOKING WEST

12/7/2022 1:09 PM

REVISIONS

DATE	REV	DESCRIPTION

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REGISTERED PROFESSIONAL ENGINEER
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NO. C 48159
EXP. 6/30/2024
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STATE OF CALIFORNIA

BHC
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OVERLAND PARK, KS 66210
PHONE: (913) 663-1900

vero NETWORKS

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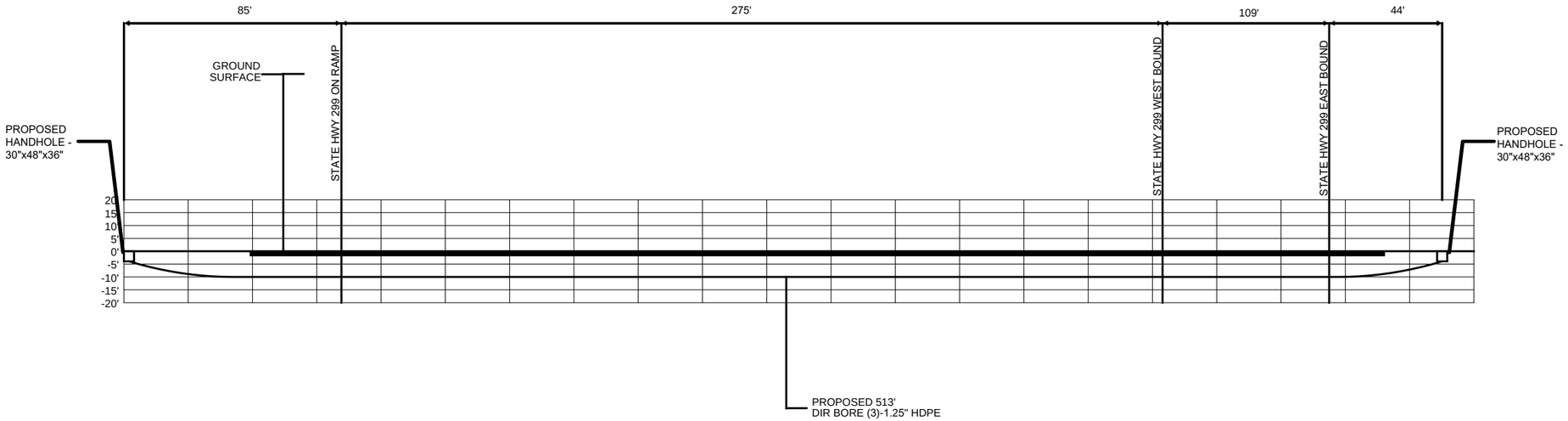

PROFILE 002 SEE SHEET PL.25
STATE HWY 299
CROSSING STATE HWY 299
PROFILE VIEW LOOKING
NORTH EAST

12/7/2022 1:09 PM

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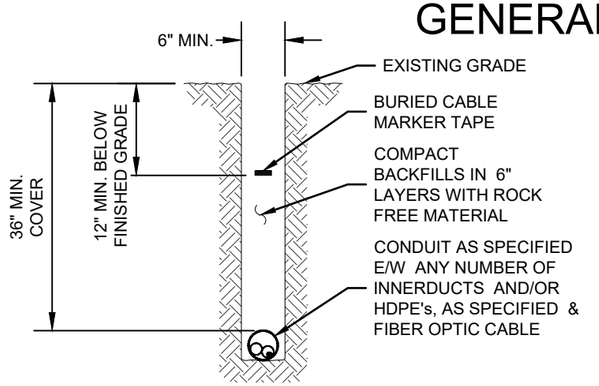
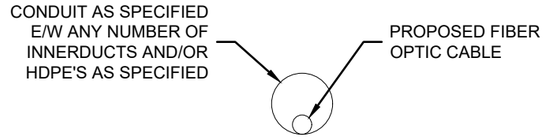
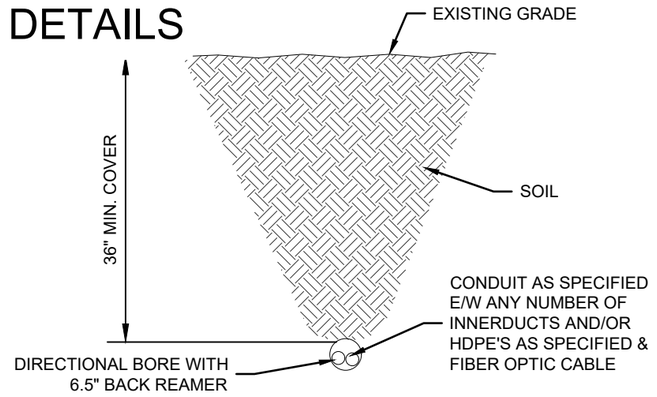
GENERAL UNDERGROUND CONSTRUCTION DETAILS



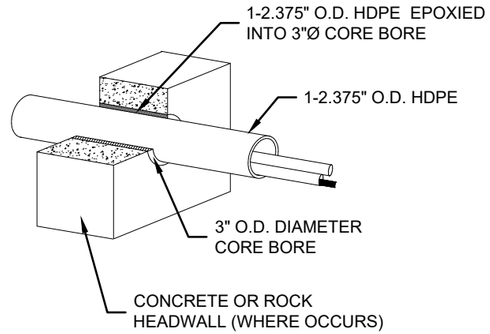
TYPICAL DETAIL "A"
TRENCH & PLACE CONDUIT



TYPICAL DETAIL "B"
CROSS SECTION OF PROPOSED HDPE

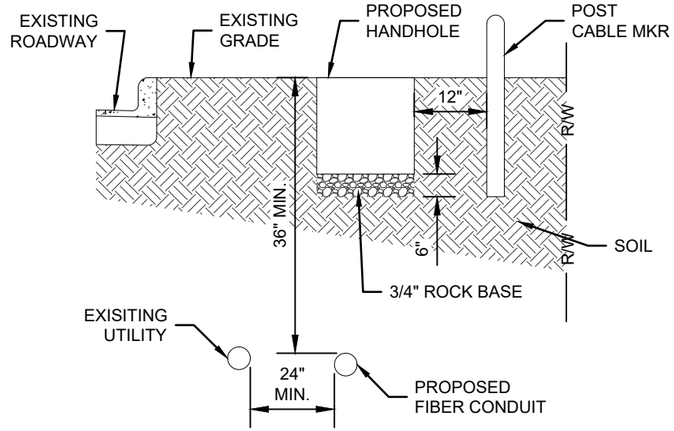


TYPICAL DETAIL "C"
DIRECTIONAL BORE CROSS SECTION FOR CONDUIT

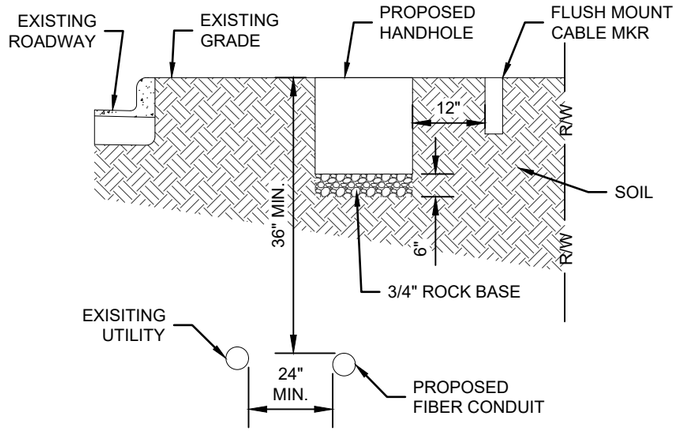


NOTE:
EPOXY GROUT IS USED AT BOTH ENDS OF CORE BORE TO SEAL GAP BETWEEN 2.375" CONDUIT AND PVC SLEEVE.

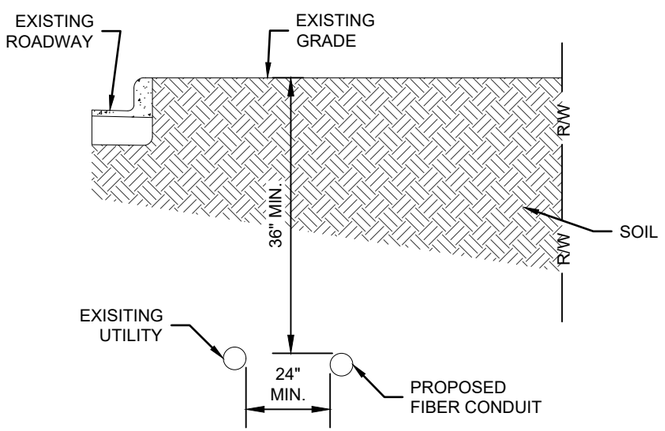
TYPICAL DETAIL "D"
3" CORE BORE



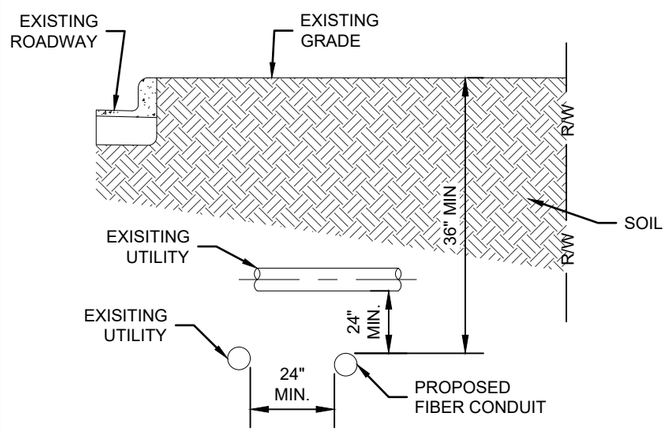
TYPICAL DETAIL "E"
HH WITH ABOVE GROUND MARKER



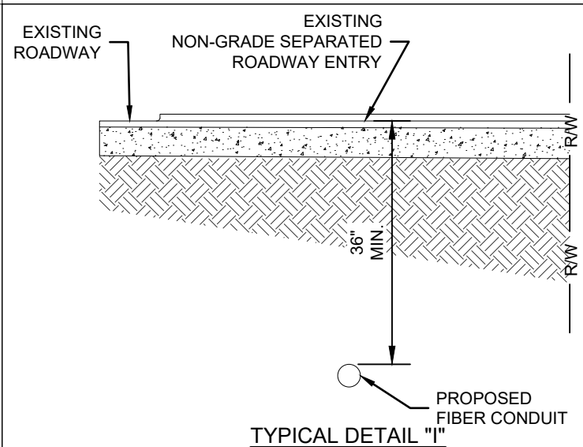
TYPICAL DETAIL "F"
HH WITH FLUSH MOUNT MARKER



TYPICAL DETAIL "G"
PARALLEL TO OTHER UTILITIES



TYPICAL DETAIL "H"
CROSSING OTHER UTILITIES



TYPICAL DETAIL "I"
CROSSING NON-GRADE SEPARATED ROADWAY ENTRY

3/10/2021 - 2:33 PM

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TYPICAL DETAIL DRAWINGS

TY.01

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

Charles D Sparks
REGISTERED CIVIL ENGINEER

August 1, 2022
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Charles D. Sparks — No. C47029 — Exp. 3-31-24 — CIVIL — STATE OF CALIFORNIA

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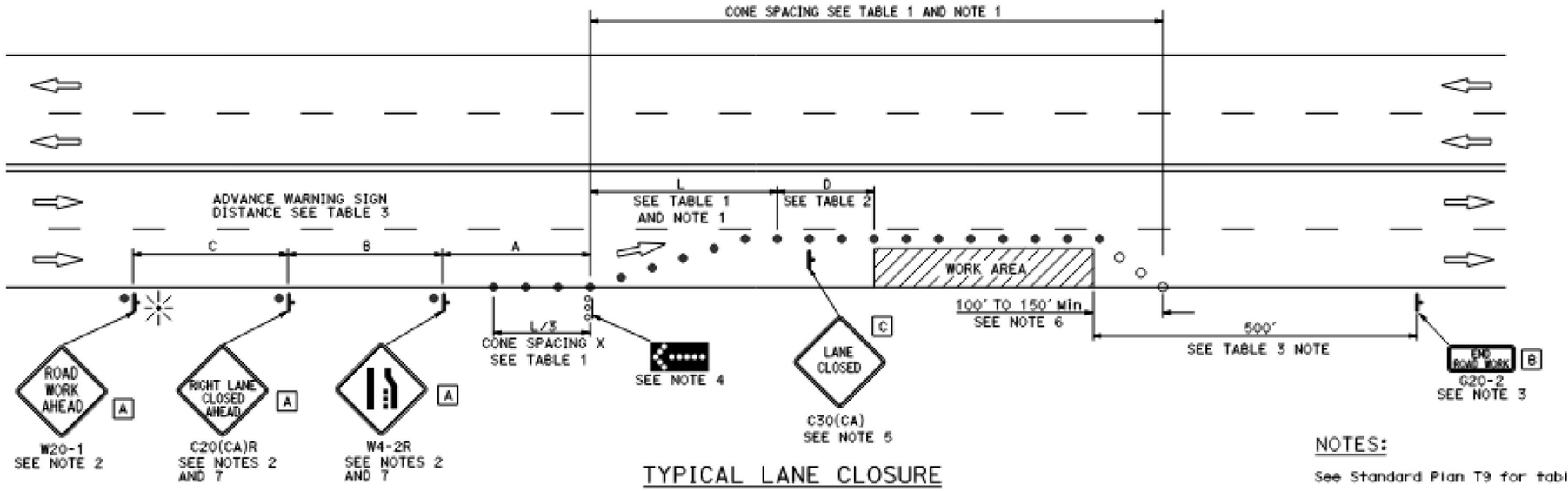

TYPICAL LANE CLOSURE

NOTES:

See Standard Plan T9 for tables.

Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

Provide at least one person to continuously maintain traffic control devices for lane closures.

LEGEND

- ● TRAFFIC CONE
- ○ TRAFFIC CONE (OPTIONAL TAPER)
- TEMPORARY TRAFFIC CONTROL SIGN
- FLASHING ARROW SIGN (FAS)
- FAS SUPPORT OR TRAILER
- PORTABLE FLASHING BEACON

SIGN PANEL SIZE (Min)

- [A] 48" x 48"
- [B] 36" x 18"
- [C] 30" x 30"

NOTES:

1. Portable delineators placed at one-half the spacing indicated for traffic cones may be used instead of cones for daytime closures only.
2. Each advance warning sign shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
3. A G20-2 "END ROAD WORK" sign shall be placed at the end of the lane closure unless the end of work area is obvious or ends within the larger project's limits.
4. A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at the top of crest vertical curve or on a horizontal curve.
5. Place C30(CA) "LANE CLOSED" sign at 500' to 1000' intervals throughout extended work area.
6. Length may be reduced by the Engineer to address site conditions.
7. Median lane closures shall conform to the details shown except that C20(CA)L and W4-2L signs shall be used.
8. For approach speeds over 50 MPH, use the "Traffic Control System for Lane Closure on Freeways and Expressways" plan for lane closure details and requirements.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON MULTILANE CONVENTIONAL HIGHWAYS

NO SCALE

T11

2022 STANDARD PLAN T11

310

6-24-22

PROJECT ARCATA TO TRINIDAD
HUMBOLDT COUNTY

ISSUE FOR PERMIT: 5/28/2024

PERMIT NAME:	VERO_HUMBOLDT_05
JURISDICTION:	HUMBOLDT COUNTY
COUNTY:	HUMBOLDT
BORE FOOTAGE:	20247'
STRUCTURES:	12 HANDHOLES

DRAWING INDEX

APPLICATION PREPARED BY:

CHRIS SCHEPMANN
PROJECT MANAGER 2
7101 COLLEGE BLVD. SUITE 400
OVERLAND PARK, KS 66210

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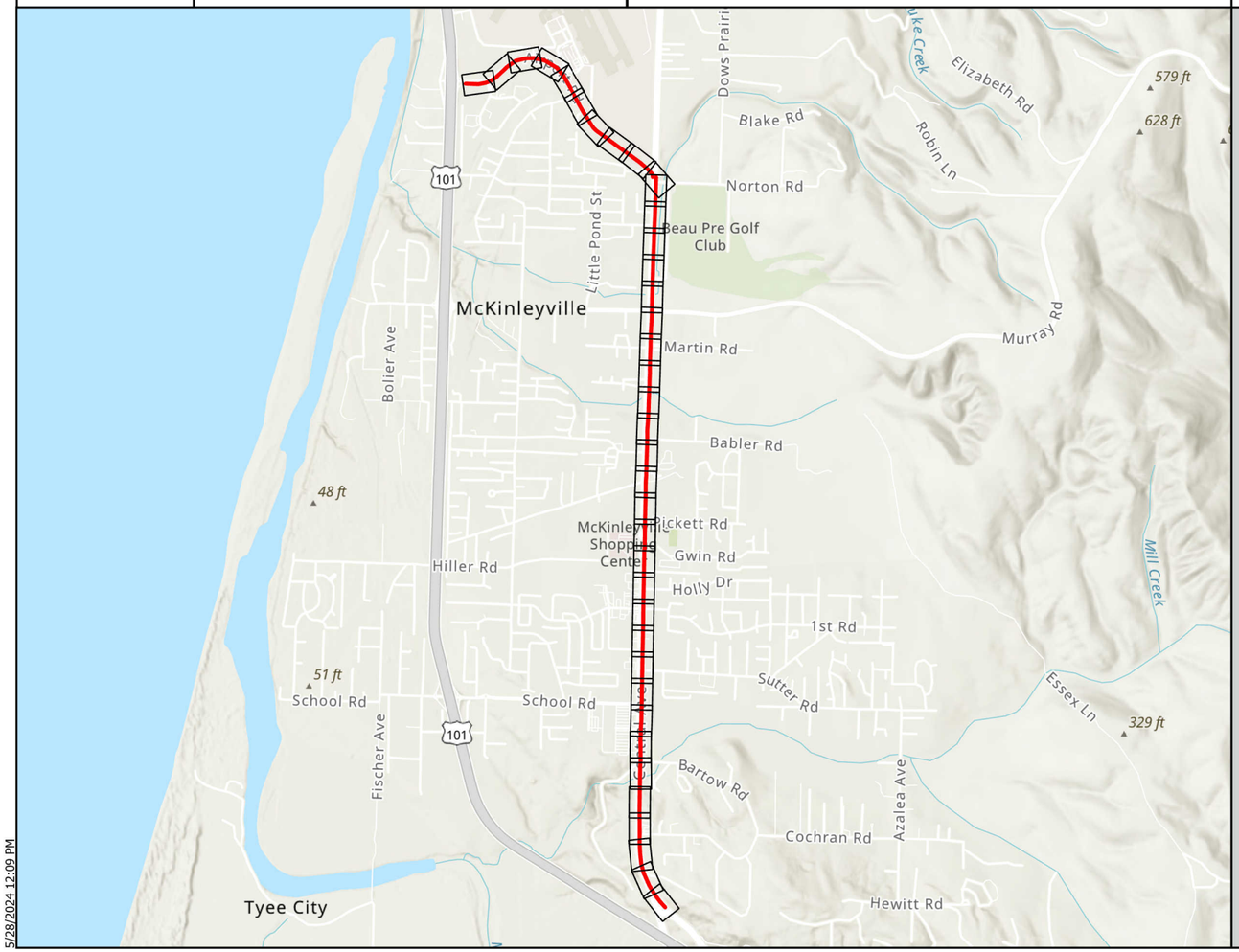

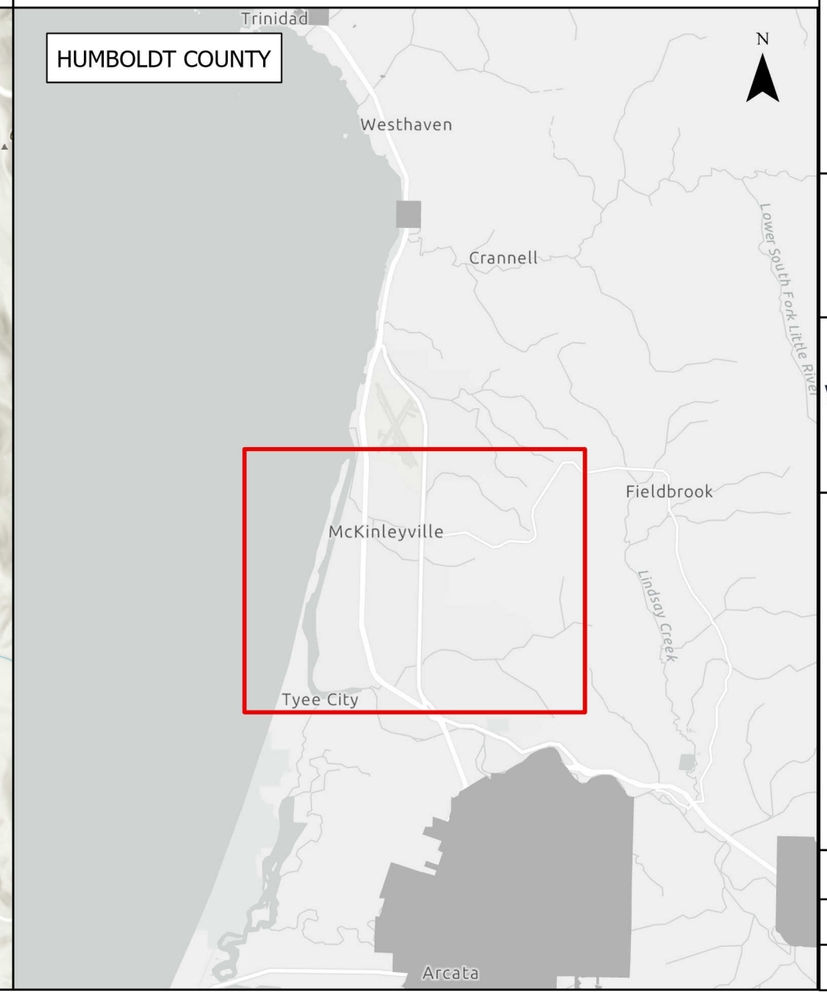

PERMIT ISSUE: 5/28/2024

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HUMBOLDT COUNTY

TRINIDAD TO ARCATA

T.01

5/28/2024 12:09 PM

SYMBOLOGY:

EXISTING:

- Gas Manhole
- Gas Meter
- Gas Valve
- Electrical Manhole
- Electrical Meter
- Electrical Pedestal
- Electrical Vault
- Electrical Cabinet
- Water Hydrant
- Water Manhole
- Water Meter
- Water Valve
- Water Vault
- Sanitary Sewer Manhole
- Sanitary Sewer Other
- Telecom Manhole
- Telecom Pedestal
- Telecom Vault
- Telecom Cabinet
- Traffic Control Light
- Traffic Control Manhole
- Traffic Control Other
- Traffic Control Vault
- Traffic Control Cabinet
- Storm Sewer Grate
- Storm Sewer Manhole
- Storm Sewer Drain
- Light Pole
- Utility Pole w/Light
- Utility Pole
- Electric Line
- Gas Line
- Sanitary Sewer Line
- Storm Sewer Line
- Telecom Line
- Traffic Line
- Water Line
- R/W Right of way
- ESMT Easement

- EOP&CURB Curb and Gutter
- Dirt
- DRIVE Driveway
- EOP Edge of Pavement
- Gravel
- S/W Sidewalk
- Centerline
- Fence
- Tree
- Forest
- Contour Lines
- Wetlands

PROPOSED:

- HH Proposed Vault
- Bore Pit
- Match Line
- Proposed Conduit

ABBREVIATIONS:

CL	Centerline	MMV	Meet Me Vault
CMP	Corrugated Metal Pipe	MON	Monument
CO	County	NO	Number
CONC	Concrete	PRK MTR	Parking Meter
CSG	Casing	P/L	Property Line
CT	Count	PED	Pedestal
CTV PED	Cable TV Pedestal	PED-X SIG	Pedestrian Crossing Signal
CULV	Culvert	PI	Point of Inflection
DBH	Diameter at Breast Height	PKG	Package
		PVC	Polyvinyl Chloride
D.D.	Down Drain	RCB	Reinforced Concrete Box
DEPT	Department	RCP	Reinforced Concrete Pipe
DIA	Diameter	RD MEM	Roadside Memorial
DIR	Directional	REQD	Required
DIST	District	RGS	Rigid Galvanized Steel
DOC	Depth of Cover	ROW	Right of Way
DOT	Department of Transportation	RR	Railroad
		RR HUT	Railroad Signal Hut
DWG	Drawing	SCB	Sprinkler Control Box
DWY	Driveway	SD	Storm Drain/Curb Inlet
E MH	Electric Manhole	SDMH	Storm Water Manhole
E MKR	Electric Line Marker	SEC.	Section
E PED	Electric Pedestal	SF	Silt Fence
E VLT	Electic Vault	SMH	Sanitary Sewer Manhole
EM	Electric Meter	SP	Splice
ENC	Encased	SS CO	Sanitary Sewer Clean Out
ENG	Engineering	SS LIFT	Sanitary Sewer Lift Station
EOP	Edge of Pavement	STA.	Station
EPB	Electric Pull Box	STD	Standard
EXIST	Existing	STR	Section Township Range
FH	Fire Hydrant	SWPPP	Storm Water Pollution Prevention Plan
FO	Fiber Optic		
FO MH	Fiber Optic Manhole	SWT MCH	Switch Machine
FO MKR	Fiber Optic Line Marker	T HH	Telecom Handhole
FO VLT	Fiber Optic Vault	T MH	Telecom Manhole
FOC	Fiber Optic Cable	T MKR	Telecom Line Marker
FS	Filter Sock	T PED	Telecom Pedestal
G MH	Gas Manhole	T VLT	Telecom Access Vault
G MKR	Gas Line Marker	T.P.	Trench Plug
G SD	Grated Storm Drain	TCB	Traffic Control Box
GALV	Galvanized	TCE	Temporary Construction Easement
GEO SRV MKR	Geodetic Survey Marker	TCV	Traffic Control Vault
GM	Gas Meter	TRF MH	Traffic Control Manhole
GV	Gas Valve	TSP	Traffic Signal Light
GWMW	Groundwater Monitoring Well	TYP	Typical
		UG	Underground
HDPE	High Density Polyethylene	UNK MH	Unknown Manhole
		UNK PED	Unknown Pedestal
HH	Handhole	UNK UTL MKR	Unknown Utility Marker
HWY	Highway	UNK VLT	Unknown Vault
IB	Inlet Barrier	USACE	United States Army Corps Of Engineers
ILA	In Line Amplifier		
INC	Incorporated	UTL LP	Utility Light Pole
INT	Intermediate	UTL P	Utility Pole
L/A ROW	Limited Access Right of Way	VDOT	Virginia Department of Transportation
LF	Linear Feet	VLT	Vault
LOC MKR	Locating Marker	VP	Gas Vent Pipe
LP	Light Pole	W MH	Water Manhole
MAX	Maximum	W MKR	Water Line Marker
MB	Mailbox	W SPG	Water Spigot
MH	Manhole	W VLT	Water Vault
MIN	Minimum	WM	Water Meter
MIT	Mitigation	WV	Water Valve
MKR	Marker	X-GATE	Crossing Gate
ML	Maintenance Limits	YRD L	Yard Light

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HUMBOLDT COUNTY

ARCATA TO TRINIDAD

T.02

PROJECT CONTACTS

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(707) 445-7388 EX. 2
KFREED@CO.HUMBOLDT.CA.US

CALTRANS DISTRICT 1
1656 UNION STREET
P.O. BOX 3700
EUREKA, CA 95502-3700
(707) 498-0578
D1PERMITS@DOT.CA.GOV

CONSTRUCTION NOTES

UNDERGOUND CONSTRUCTION

CONDUIT INFRASTRUCTURE CONSTRUCTION

1. RIGHT-OF-WAY PROTECTION AND RESTORATION

1. Contractor shall comply with requirements stipulated by relevant authorities having jurisdiction (City, County, State and Federal), and shall minimize damage to rights of way and ensure all clean up and restoration meets or exceeds such jurisdiction specifications, with all debris and waste removed at Contractor's cost/expense
2. Contractor shall comply with all Environmental Protection agency requirements (State and Federal) and ensure compliance on all projects.

2. MATERIALS

1. CONDUIT
1. HDPE is the default choice for underground conduit, minimum wall thickness SDR-11. The properties and dimensions shall be in accordance with ASTM F2160 standard specification for Solid Wall High Density Polyethylene (HDPE) Conduit unless otherwise approved by Company Project Manager permitting authority. Duct size and number of ducts will be specified on the Engineering Workprints, purchase order or scope of work issued to Contractor. All materials supplied and used by contractors must approved by Company Project Manager.
2. Conduit shall be installed by pulling the duct directly from reels on reel trailers.
• Note: This will ensure as little waste as possible of the Duct, as well as less stress on duct and safer for crew members.
3. Crews will NOT pull duct off reels prior to installing unless there is absolutely no physical way to get a reel trailer set up safely.
• Note: having to shut down a lane to accommodate the reel trailer for pulling duct or any other, other than normal solution, does not meet the criteria of "no physical way"
• Once Duct is in the HH, MH, and or site, etc., they will all be sealed by using the proper duct plugs.
• Photos with Solocator will be taken per written standard. See OSP.1012 Standards Bulletin for further detail.

3. MANHOLES

Manholes provided by contractors must meet Bellcore standards and specifications and be approved by Company Management. All manholes will conform to AASHTO (American Association of State Highway and Transportation Officials) H-20 loading, traffic rated standards.
GPS will be taken at every Manhole placed. Photos with Solocator will be taken at every placed manhole per written
standard. See OSP.1012 Standards Bulletin for further detail. And as required by SOW.

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HUMBOLDT COUNTY

TRINIDAD TO ARCATA

GN.01

2/27/2024 11:05 AM

CONSTRUCTION NOTES

HANDHOLES

Handhole type and manufacture will be specified by COMPANY in the scope of work and the Contractor will be required to purchase and use those for the specific build
Handholes for slack use will be a minimum of 36 inches in depth, 48 inches in length and 30 inches in width Handholes used for splice locations will be a minimum of 48 inches in
depth, 60 inches in length and 36 inches in width
These and any Handhole used on a COMPANY construction project shall be, at a minimum, A Tier 22 with a load rating of 22,000 lbs. minimum If for any reason the contractor is required to acquire COMPANY Handholes, they will meet the above requirements as well as, meeting the Bellcore standards and specifications and be approved by Company Management. All handholes will conform to AASHTO (American Association of State Highway and Transportation Officials) and if required to be in the street or a location where large weight vehicles may sit on and not just cross over them, then they must also be upgraded to a H-20 load rating, traffic rated standards. GPS points will be taken at every Handhole placed Photos with Solocator will be taken at every placed handhole per written standard. See OSP.1012 Standards Bulletin for further detail. And as required by
SOW

SPECIAL DESIGN AND MATERIAL CONSIDERATIONS

1.The contractor shall be responsible for the physical location of ALL foreign utilities within the right-of-way before digging in the vicinity in accordance with local Utility Protection Standards. Any damages to other utilities will be the responsibility of the contractor. Contractor will also be responsible for red-lining all utilities on as-builts
2.Steel pipe shall be considered where obstructions such as buried utilities or other facilities run parallel to the proposed running line and have less than 2 feet of separation.
3.GSP, Steel or PVC Schedule 80 conduit will be proposed for housing HDPE or innerduct at Railroad crossings, river crossings, culvert crossing and other obstacles of the same type crossings.
4.If these methods are used the conduit should extend a minimum of five feet past the edge of the culvert or headwall.
5.All sweeps and field bends and or turns tighter than a 36” radius will require factory fittings at all times

METHODS OF PLACEMENT

PLOWING
1. All OSHA and other governing agencies rules and regulations will apply and be followed
2. Plowing can be considered as an alternative construction method when conditions and governing authorities permit.
3.When plowing is utilized as a construction method, the equipment used by the contractor shall be such as to cause the minimum displacement of the soil. Damage to banks, ditches, driveways, and roads
4.GPS points will be taken at the start and stop of the Plow, every 150 feet along a straight and continuous plow line, and at any and all changes in direction to include drift up or down or side to side in the ROW to ensure running line accuracy.
5. Photos with Solocator will be taken as required in the scope or as needed

TRENCHING/OPEN CUTS

1. All OSHA and other governing agencies rules and regulations will apply and be followed
2. When trenching and open-cutting is an option or requirement, the contractor shall excavate by machine trench, backhoe, hand, etc.
3. The network trench shall be as straight as practicable.
1. The bottom of the trench shall be smooth and free from any sharp edges.
2. The trench shall be kept clear of debris and loose rock.
3. All changes in trench grade shall be gradual
a. Note: The vertical change in grade should not exceed (1.5') within (6') in length.
1. Prior to duct placement in the trench, the duct shall be bundled, tied and or bound by an approved method to eliminate the possibility of the duct twisting and tension shall be applied to the duct to eliminate waving in the trench.
2. Duct shall be placed in the center of the excavation and as straight as practicable. Excessive waving of the duct within the trench will not be allowed.
3. All open trenches and other excavations shall be backfilled at the end of each working day. Any open trench or excavation not backfilled may be covered as approved by the governing authority's rules and regulation
4. GPS points will be taken at the start and stop, every 25 feet along a straight and continuous trench line, and at any and all changes in direction to include drift up or down or side to side in the ROW to ensure running line accuracy.
5. Photos with Solocator will be taken as required in the scope or as needed

BORING

1. All OSHA and other governing agencies rules and regulations will apply and be followed
2. When Boring is allowed the contractor shall use Directional Boring as the preferred method.
3. The contractor will be responsible for all unsuccessful bore attempts. All unsuccessful bore attempts will be filled with grout or as required by the governing authority.
4. The contractor shall not drain any excess material into storm, sanitary systems, ditches or anywhere on the Right of Way.
5. When crossing all deadly utilities they must be daylighted by potholing to verify there is sufficient separation from the Company duct, or if paralleling within 10’ horizontally.
1. Note: separation is 24” without written authorization from COMPANY or the governing agency or agencies.
6. All verifications will be physical verification on site of the actual utility
7. Bore logs will be kept and document the start, the stop and every 10 feet in between.
8. The contractor shall submit all boring logs and profiles to Company
9. In general the vertical change in grade shall not exceed one and a half feet (1.5') in six feet (6') in length.
10. GPS points will be taken at the start and stop of every bore, every change of stem (i.e., every 10 feet when using 10-foot stems, 15 feet when using 15-foot stems etc.) along a straight and continuous bore line, and at any and all changes
in direction to include drift up or down or side to side in the ROW to ensure running line accuracy and depth accuracy.
11. Photos with Solocator will be taken as required in the scope or as needed

GENERAL RESTORATION

1. All OSHA and other governing agencies rules and regulations will apply and be followed
1. All rock and debris brought to the surface and not used during backfilling operations shall be removed and disposed of in an appropriate manner.
2. Improved landscape, lawns, shrubs, and hedges removed or damaged shall be replaced in like kind.
4. All areas disturbed by the construction activities in public rights-of-way shall be restored and seeded per the specifications of the governing authority.
5. The contractor shall promptly repair or replace any other property damaged during construction.
6. Contractor shall remove all duct installation debris including construction spoils and remaining installation materials from any public or private properties.
a. NOTE: Such material to be removed would also include litter generated by the construction crews.
7. No debris or litter should ever be disposed of in a trench or other telecommunication excavation. The contractor is responsible for the proper disposal of all soil, concrete, asphalt or other debris.
8. No asphalt shall be permitted in the backfill.
9. Photos with Solocator will be taken before, during and after restoration and as needed

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HUMBOLDT COUNTY

TRINIDAD TO ARCATA

GN.02

2/27/2024 11:00 AM

CONSTRUCTION NOTES

PAVEMENT RESTORATION

1. All OSHA and other governing agencies rules and regulations will apply and be followed
2. It is recommended that Cobblestone or old brick in historic areas, be numbered, photographed, removed, and then stored for replacement. Care must be taken to restore historic areas to their original condition and "look."
3. Pavement, driveways, and sidewalks shall be restored to their original or better condition within five (5) business days or as soon as practicable, following duct placing operations.
4. The backfill within the roadway shall be placed and compacted in not more than six-inch (6") lifts from the bottom to the finished grade.
5. Photos with Solocator will be taken before, during and after restoration and as needed

BACKFILL

1. The trench shall be backfilled and compacted to the satisfaction of Company and local authorities, promptly behind duct placement.
2. The backfill shall be the trench excavated materials, provided the excavated materials are free from debris, rocks measuring less than two inches (2") in diameter and other unsuitable materials.
3. Backfill within the roadway shall be placed and compacted per the governing authority specification or to ninety percent (90%) modified proctor in non-traveled areas and ninety five percent (95%) modified proctor in traveled areas whichever is greater.
4. Company 's engineer has the right to test the soil compaction randomly. If soils do not meet the compaction requirements, the contractor will be directed to remove fill until proper compaction is found. The contractor will not have any claim to additional time or additional costs.
5. If Company 's engineer tests 5 locations that fail compaction, then Company 's engineer can require all backfill lifts to be tested. The contractor will be required to pay for all the testing including, but not limited to, labor, equipment and lab tests.

DEPTH OF PLACEMENT

1. Except where specified in the drawings, approved by Company , or permit specifications dictate a different depth, the top duct shall be placed a minimum of Forty-two inches (≥42") below grade or as required by authority having jurisdiction with a minimum of twelve inches (12") of separation from foreign object or as required by object's owner which is greater.
2. Where the network crosses gullies, ditches, streams, rivers, and washes, the conduit will be placed at a minimum depth of forty-eight inches (48") below the bottom of the waterway unless the controlling authority requires additional depth in which case the greatest depth will be maintained.
3. Where the network route crosses railroads, the network shall be placed at a minimum depth of sixty inches (60") below the base of rail or sixty inches (60") below the paralleling drainage ditches, or at greater depths as required by permitting authorities which is greater.
4. Where the network crosses existing subsurface pipes, cables, or other structures, the network will be placed to maintain a minimum of twelve inches (12") separation (preferred to be 24" whenever possible) from the foreign object or a minimum separation as required by the object's owner, whichever is greater.
5. For special cases when minimum cover cannot be obtained due to the location of subsurface obstructions and/or other utilities, these special considerations will be acceptable, but only with Company Management approval:
a. BSP/GSP or Concrete Encased HDPE will be used with cover between 12" to 35", with Middle Mile Management approval.

COUPLER INSTALLATION

1. Barbed Couplers will be utilized and installed per manufacturer's specification, buried flush with the path/bore/trench of the conduit.
2. Barbed Couplers are the only authorized couplers for any and all COMPANY HDPE duct
3. To prevent the bundling of Barbed couplers at one location or hole and to meet requirements for depth of cover; the couplers must be staggered and sequenced every six inches between multiple conduits and should not overlap or touch another coupler.
4. If micro duct is used (i.e., 7way, 6way, 4way etc.,) a rubber boot will be applied over the micro duct couplers and then heat shrunk for added strength both vertically and horizontally, as well as,sealing the staggered couplers from foreign substances
5. All locations of barbed couplers should be noted and correspond to a depth and station number on the as-built drawings.
6. All Couplers at all Coupler locations will be photographed with Solocator and provided as a deliverable to Company , to include but not limited to the GPS location, station number and a number of all couplers, barbed and or micro coupler, at each location. And as required by SOW.
7. See OSP.1012 Standards Bulletin for further detail.

CABLE MARKER SIGNS

Marker Poles
1. Marker Poles will be set at each Splice, Handhole and Manhole location.
a) The cable marker posts shall be placed whenever possible within a one-
foot offset from the back of the Handhole/Manhole, centered on the back side of the Handhole/Manhole between it and the outside ROW line
b) if due to permitting agency rules, Marker Poles are not allowed then
alternative means will be used to mark these assets.
c) Any deviation from Marker Poles to other devices will require COMPANY written approval.
2. Marker poles will be set at all crossings (i.e., road, river, rail, etc.)
3. Marker poles will be set at all changes of direction in the running line.
4. Marker Poles will be set in such a way so there is never more than 500lineal feet between any two Marker Poles.
5. Marker Poles will be set in such a way that no matter where you stand onthe ROW, you will be able to see a Marker Pole
6. GPS points will be taken at every placed Marker Pole
7. Photos with Solocator will be taken at every placed marker Pole And as required by SOW.

DEPTH OF MARKER SIGN

1. Contractor shall bury the marker post as per Manufacturer's specification, at twenty-four inches (24") below grade and ensure the cross member has been added to ensure stability and the Marker Pole can't be lifted.
2. The cable marker posts shall be placed whenever possible directly over the the network running line or as close as the permitting authority allows.
3. Any offset shall be permanently noted on the space provided by the cable marker sign.
4. All Marker Posts are to be GPS'd

TRACER WIRE

1. When a trace wire is required, a minimum of a 10-gauge poly coated solid copper tracer wire will be placed with every linear foot of duct placed,regardless of the type of construction
2. If armored cable is used, then the locate wire from the enclosure to the Locate test Station pole will be poly coated solid # 6.
3. Locate marker posts, flush mount finks, manholes, handholes, and all other tracer access points will be connected to the tracer/ground wire for locating buried facilities.
4. Tracer wire connectivity tests must be conducted by the contractor to ensure the entire plant is locatable.
5. Damaged tracer/ground wires will be repaired immediately with minimal connectors.
6. COTT or other Company acceptable test stations will be placed at each manhole/handhole, using the ground tree model to ground tracer wire at splice locations. see OSP.1003 – Splice Point Grounding for Locate Test Point Stations in Appendix A

PROOFING DUCT

1. All conduits, regardless of size will be verified for ovality, turning angle, and damage by proofing the duct per manufacturer specification and or with an 85% space capacity mandrel whichever is greater.
2. The mandrel will be made of metal and not to exceed the length of 3 times the diameter of the duct.
3. Proofing of the duct shall be completed with air pressure of at least 50 PSI and no more than 150 PSI or the max duct PSI whichever is less.
4. All proofing results must be witnessed and documented by an appropriate Company representative.
5. Damaged duct should be repaired immediately with minimal couplers.

SEALING DUCTS

All ducts must be properly sealed per manufacturer specifications with Duct plugs or an equivalent approved by the Company Project Manager. Ducts or duct plugs should be labeled with the direction of the conduit path.
All ducts with FOC present must be properly sealed with a half Moon or equivalent plug approved by the Company Project Manager.

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HUMBOLDT COUNTY

TRINIDAD TO ARCATA

GN.03

CONSTRUCTION NOTES

MANHOLE AND HANDHOLE CONSTRUCTION

1. Handholes and manholes shall be installed by the contractor as designated in the construction drawings. Installation shall include all grouting, installation of extension ladders, required extension rings, and all related work for the complete installation of the structure. The design loading for all man-holes and handholes shall be capable of supporting H-20 loading,
per the American Association of State Highway and Transportation Officials (AASHTO.)
2. All Intermediate Slack Vault (IEV) Hand holes will be sized to a minimum of 30" in width x 48" in length x 36" in depth and open bottom
3. All Network Splice Vault (NSV) HHs will be sized to a minimum of 36" in width x 60" in length x 48" in depth and open bottom.
4. The handholes shall be set on a base minimum thickness of six inches (6") or as provided in manufacturer's specifications consisting of clean gravel or crushed stone with a minimum diameter of three-quarter inch (3/4") and a diameter maximum one and one-half inch (1.5").
5. The ducts shall enter and leave hand holes exactly opposite each other within the handhole to facilitate the cable coils and/or splice closures. When ever possible the duct will enter from underneath the Handhole, not the sides. Each duct length inside handholes and manholes shall be a minimum length of six inches (6") from the inside wall of the HH, but no more than twelve inches (12").
6. Micro duct should be a minimum length of ten inches (10") from the inside wall of the HH, but no more than sixteen inches (16") and then four inches (4") of the outer sheath should be removed to allow the unfettered access to the individual micro ducts.
7. At all splice locations the contractor shall install a 3-rod ground tree for fiber optic cable grounding in accordance with the detailed drawings provided in
Bulletin OSP.1003 – Splice Point Grounding for Locate Test Point Stations.
• Ground Trees will be GPS'd
7. In a Metro area, Handholes shall be set flush to grade or to the specifications of the governing authority or in accordance with the detailed drawings.
8. When outside a metro area, the handhole is to be buried and it should be set with a minimum of 18 inches (18") and or a maximum of twenty-four (24") cover.
9. Manholes shall be installed in the same manner as handholes with the following exceptions:
• The contractor shall not use material less than five thousand (5,000) pounds per square inch (PSI) in density to shim frames and covers.
• Frames and covers shall be installed to match existing grade and shall be
shimmed with either steel or concrete spacers.
• All manhole penetrations shall be sealed with a pre-approved non-shrink grout.
• All conduits, ducts, or casings that enter the manhole wall shall be back filled to 95% compaction by using sand and water or slurry to insure minimal settling of the pipe. This action will help eliminate damaged conduits.
11. Innerduct shall have a gradual sweep into the handholes and manholes, if the depth of innerduct bury exceeds forty-eight inches (48"). The handholes and manholes shall not be installed on steep banks or slopes where the cover cannot be leveled within a tolerance of one-inch (1") of drop to twelve
inches (12") of grade.
12. All innerduct or conduit entering the manhole shall be flush and horizontal to the hole of penetration on the manhole. To prevent settlement and conduit damage near the entry of the manholes, the soil or bottom of the trench will meet 95% compactions by the use of various backfill materials. The suggested method is sand and water or slurry.
13. Upon completion of the innerduct placement in the handhole and manholes, the innerduct shall rest freely without tension. Innerduct on each side shall be plugged and sealed as previously noted.
14. All HH's and MH's, 3 rod ground trees, duct entrances and anything else called out in 4.9 shall be photographed with Solocator and provided as a deliverable to Company . to include but not limited to the GPS location, station number. See OSP.1012 - QA Photo App Standard Bulletin.

SPECIAL CONSTRUCTION CONSIDERATIONS

RAILROAD CROSSINGS

1. All work shall be performed in accordance with Railroad authority and other permitting agencies.

STREAM AND CANAL CROSSINGS

1. Contractor shall comply with all Federal, State, county and local laws, rules, regulations and Company obtained permits when crossing lakes, canals, streams, or river crossings.
2. Restoration and erosion control shall be performed as required by the agency having jurisdiction and as approved by Company .

GAS LINE CROSSINGS

1. Extra care must be taken when working around gas lines.
2. All deadly utilities will be exposed to verify 24" separation from Middle Mile Management duct package when crossing
3. All placements are subject to additional requirements in accordance with standards and specifications of the gas line owner and permitting authorities.

ROCK CONSIDERATIONS

NO ROCK CLAUSE:

• NO ROCK CLAUSE Contracts and RFPs must clearly define whether rock clauses are applicable to a specific project or not.
• For contracts that have no allowances for rock considerations, the contractor is responsible and fully accountable for all construction regardless of the type and amount of rock encountered during construction.

DRAINAGE CULVERTS

1. If underground drainage tile is encountered as the network is installed, the network shall be installed as per drainage district or other governing authority specifications.
2. The contractor consistent with the pre-construction conditions and materials will repair all damaged drainage tiles. In case of a dispute regarding the proper repair of damaged tile lines, the repair specifications of the county Soil and Water Conservation District will be followed.
3. The contractor will be responsible for repair of tile damaged by the construction.
4. Repairs made to damaged tile line must enable the tile lines to operate as well or better after the repairs are completed as before they were damaged.
5. The contractor shall immediately repair any tile lines known to be damaged. Permanent tile line repairs will be made within two (2) days of the date the damage occurred, weather permitting.
6. Where a tile is damaged, the contractor must station the location and indicate the location on the red line as-built
7. Prior to back filling, a Company representative and the governing authority must approve of the final tile repair.

EXISTING UTILITIES AND SUBSURFACE OBSTRUCTIONS

1. Prior to excavation commencement, contractor shall obtain a dig ticket by calling the appropriate Utilities Protection Center number per applicable jurisdiction (state, county, city, federal).The Contractor shall obtain and maintain the Call Before you Dig Programs in all construction areas. Contractor shall also notify all existing utility owners not participating in the CBUD Programs. For Company approval and inspection, contractor shall document and maintain records that evidence the notification of all utility owners no later than seventy-two (72) hours prior to the start of construction. The records shall include date, time of day, name of individual contacted, name of companies contacted, telephone number, and confirmation number.
2. Damaged Utilities: Any utility damage will be reported to the utility owner and Company immediately. This includes any damage to Company duct or cable. Contractor will fully cooperate with Company to facilitate any repairs necessary and provide complete documentation of all activities and restoration.

FENCING

1. Safety fencing shall be erected, around the contractor's excavations and or open holes and equipment left open or out over night or weekends on the ROW or any publicly accessible place.
2. Safety fencing will consist of 6-foot T-Posts and high visibility plastic safety snow fence erected per local, state or federal rules and guidelines

DAILY CLEAN-UP

The contractor shall maintain a clean and hazard free work area including daily removal of all spills, unused or unacceptable excavation materials, and waste. The contractor should sweep all affected street work areas and side-walk areas daily in accordance with Federal, State, county, city and local laws, rules, regulations and standards.

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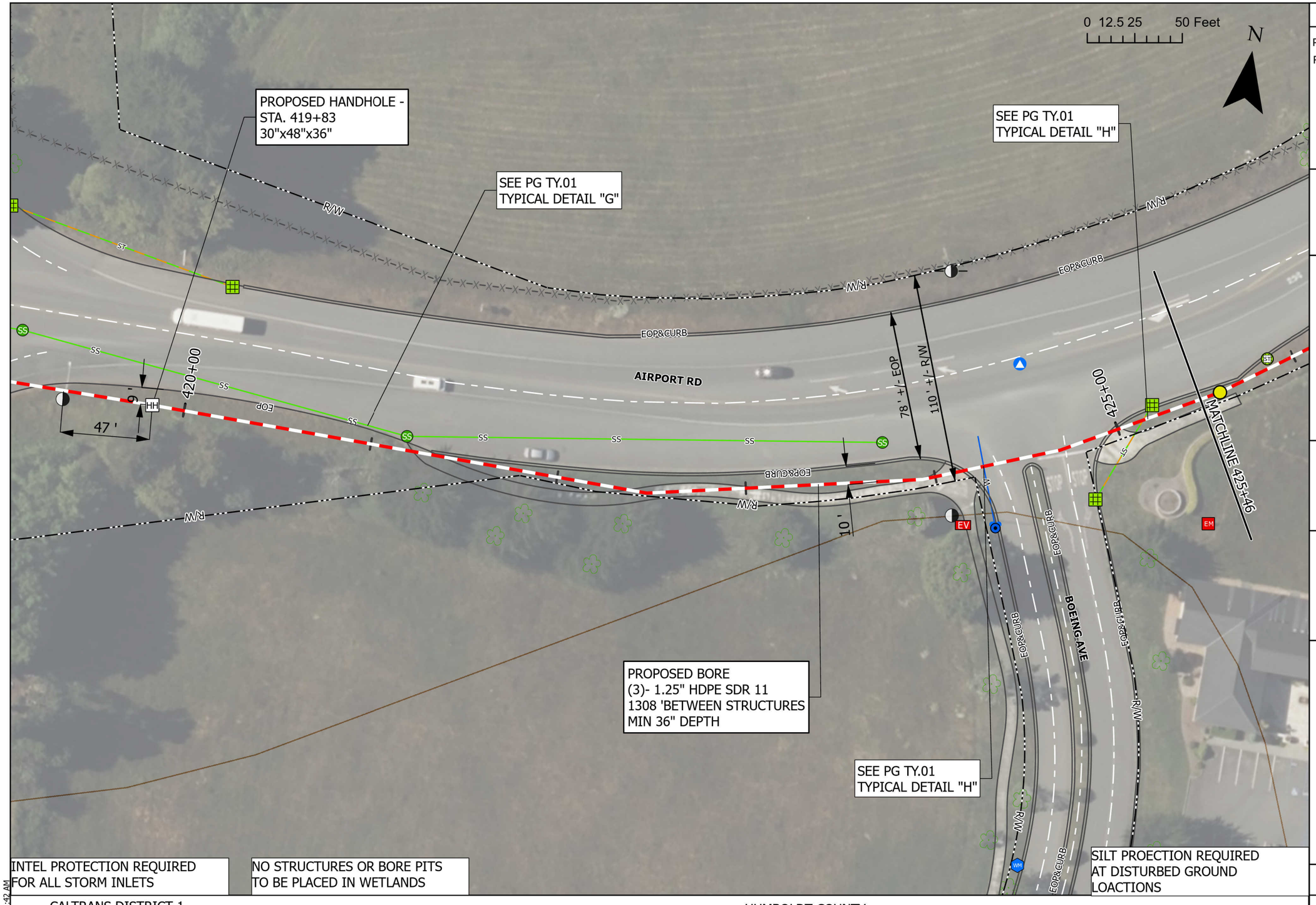
HUMBOLDT COUNTY

TRINIDAD TO ARCATA

GN.04



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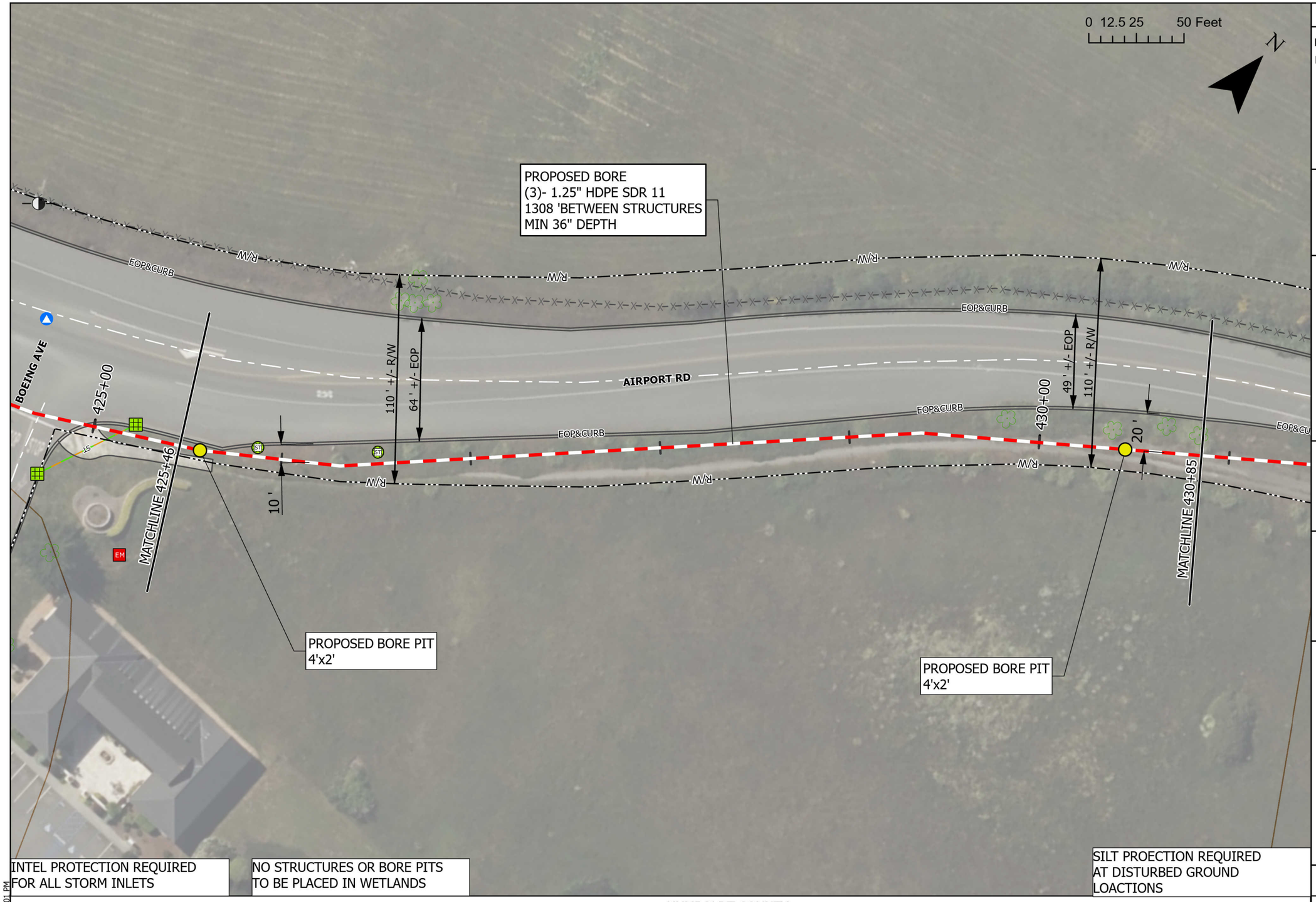
HUMBOLDT COUNTY

TRINIDAD TO ARCATA

PL.1



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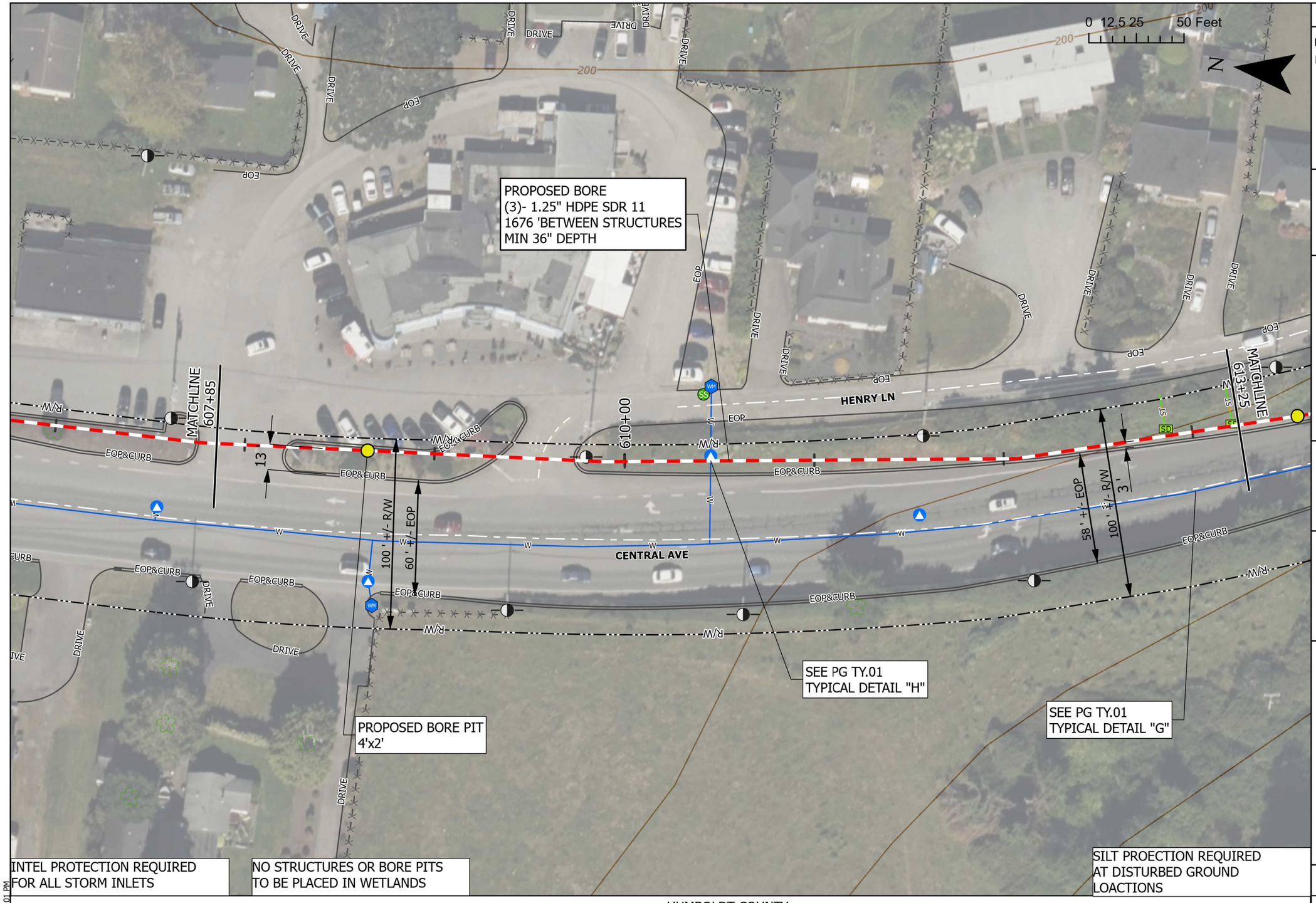
HUMBOLDT COUNTY

TRINIDAD TO ARCATA

PL.2

5/28/2024 12:01 PM



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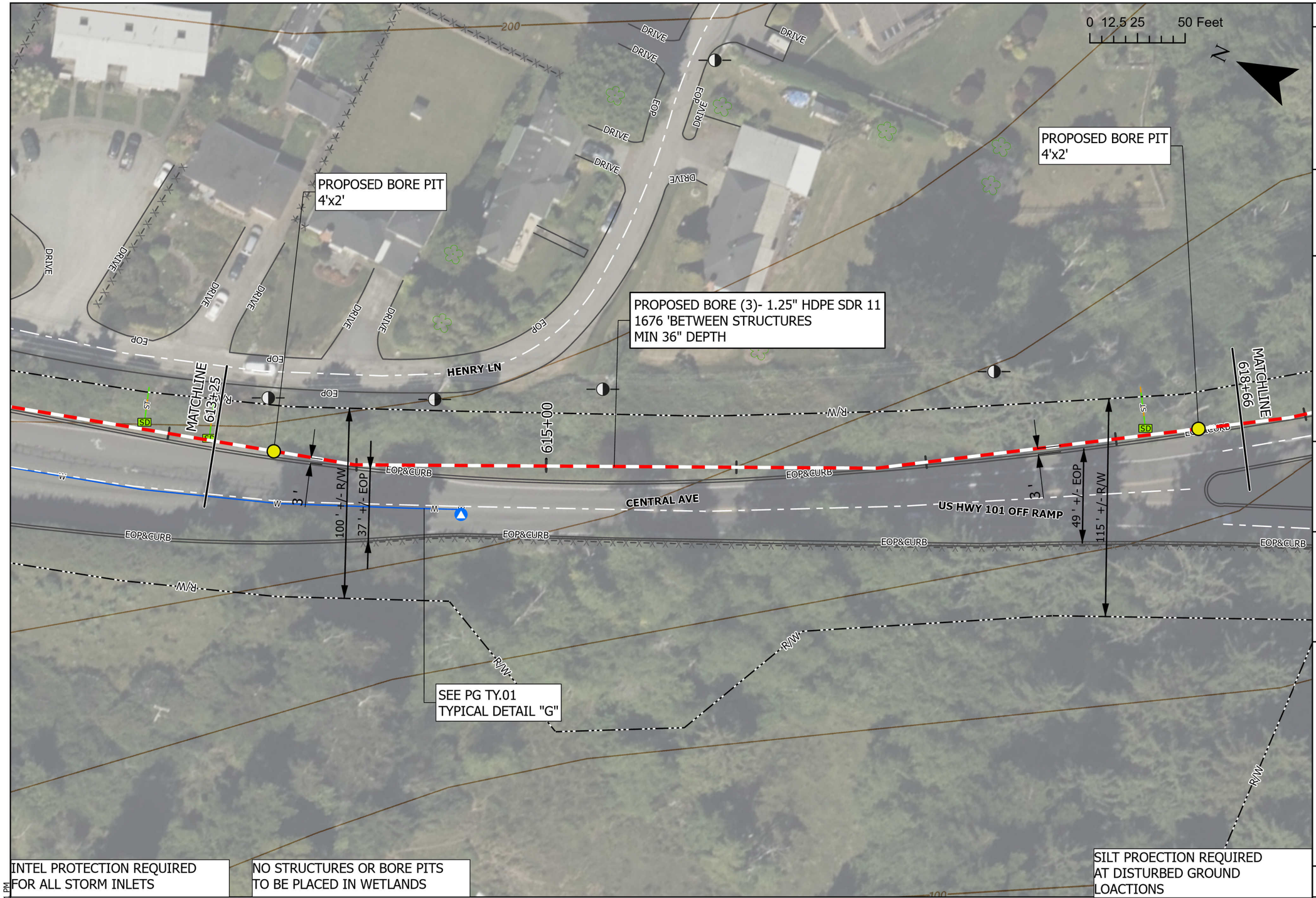
TRINIDAD TO ARCATA

PL.36



INTEL PROTECTION REQUIRED FOR ALL STORM INLETS

NO STRUCTURES OR BORE PITS TO BE PLACED IN WETLANDS

SILT PROECTION REQUIRED AT DISTURBED GROUND LOACTIONS

HUMBOLDT COUNTY
613+25 To 618+66

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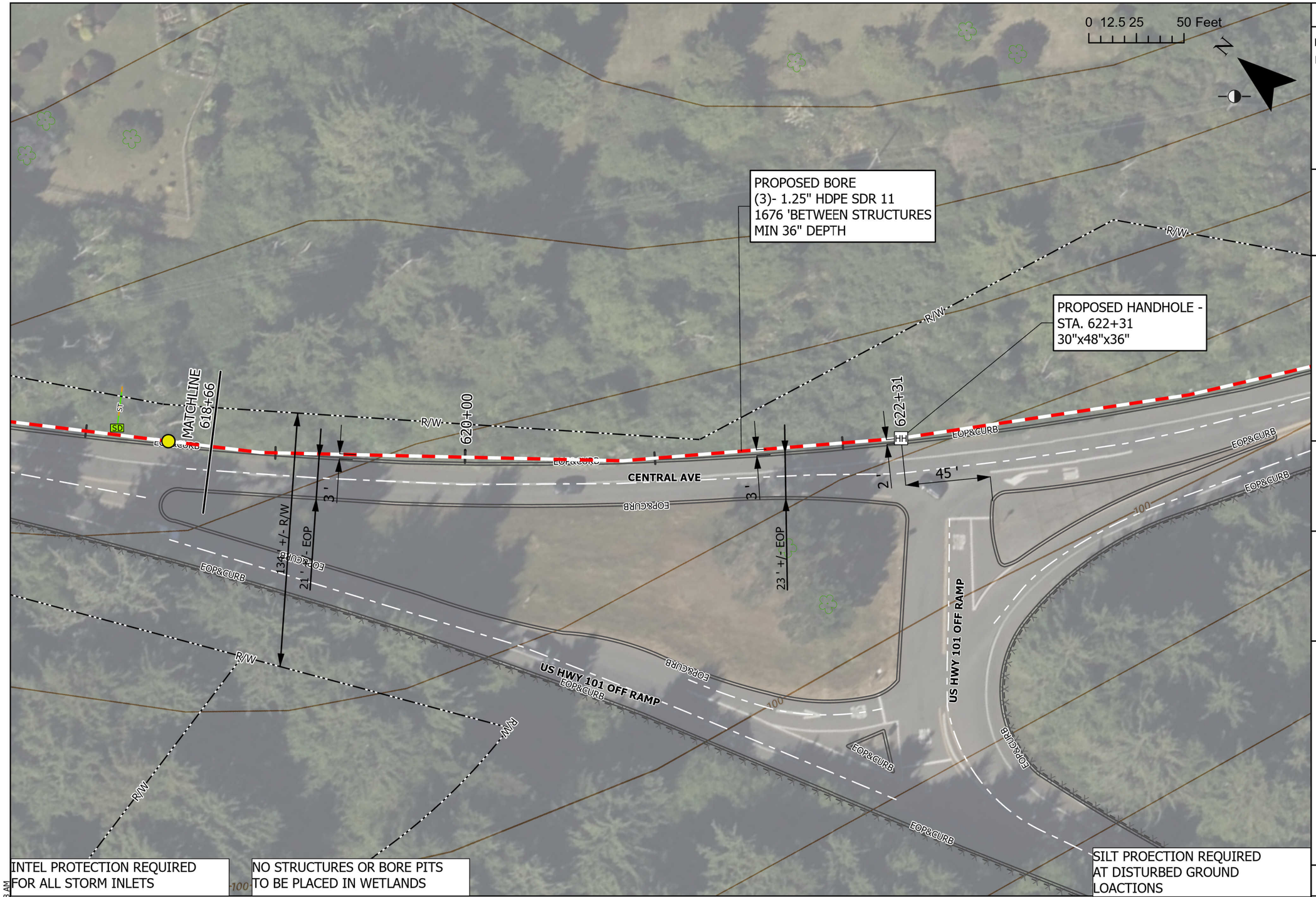
PL.37



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HUMBOLDT COUNTY

CALTRANS DISTRICT 1

618+66

622+31

622+75

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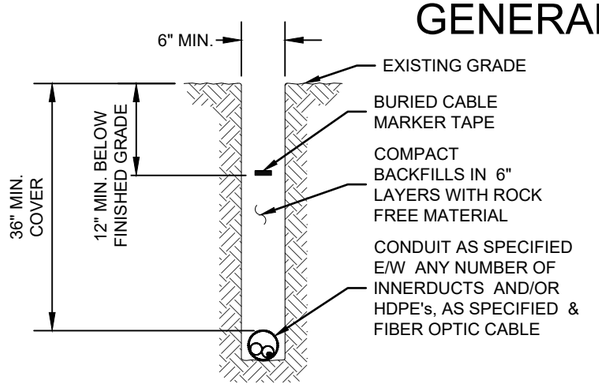
HUMBOLDT COUNTY

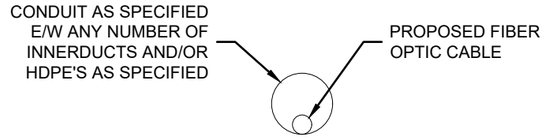
TRINIDAD TO ARCATA

PL.38

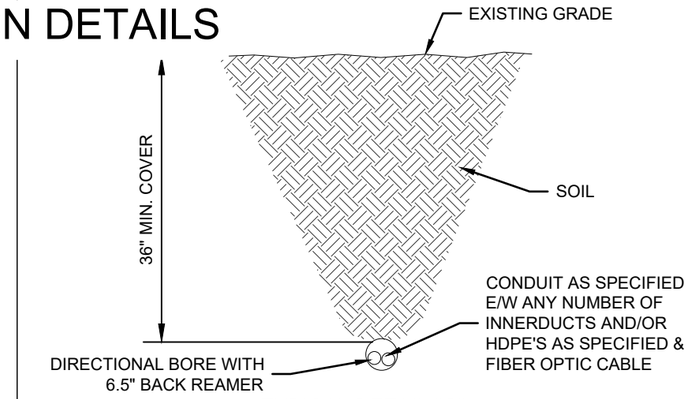
GENERAL UNDERGROUND CONSTRUCTION DETAILS



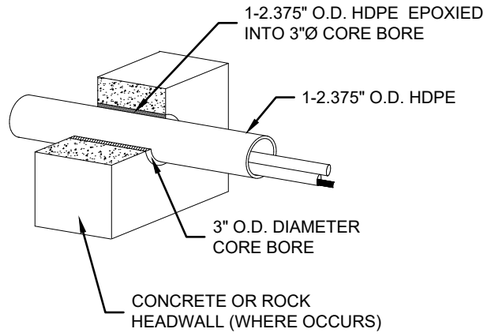
TYPICAL DETAIL "A"
TRENCH & PLACE CONDUIT



TYPICAL DETAIL "B"
CROSS SECTION OF PROPOSED HDPE

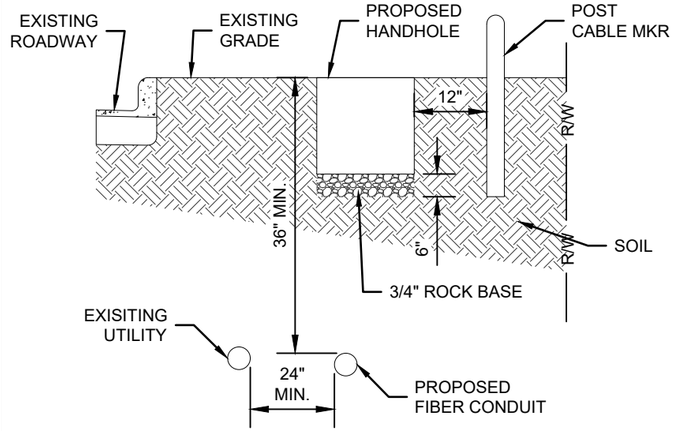


TYPICAL DETAIL "C"
DIRECTIONAL BORE CROSS SECTION FOR CONDUIT

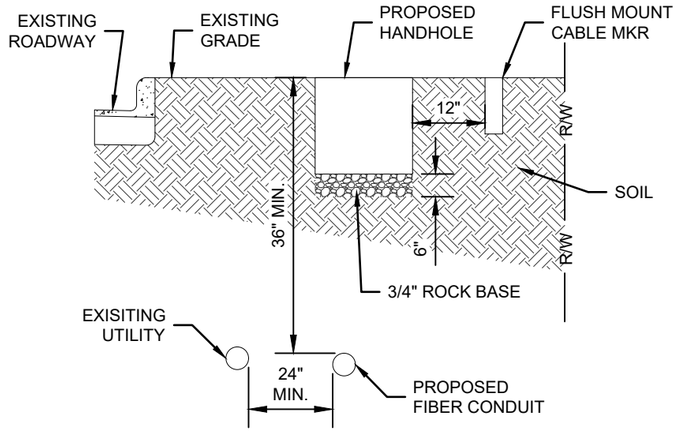


NOTE:
EPOXY GROUT IS USED AT BOTH ENDS OF CORE BORE TO SEAL GAP BETWEEN 2.375" CONDUIT AND PVC SLEEVE.

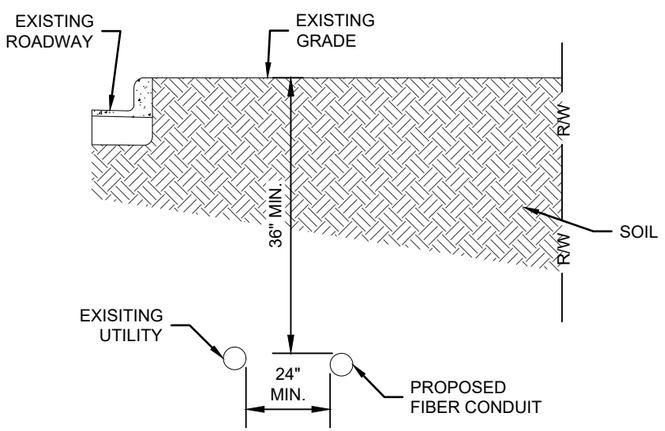
TYPICAL DETAIL "D"
3" CORE BORE



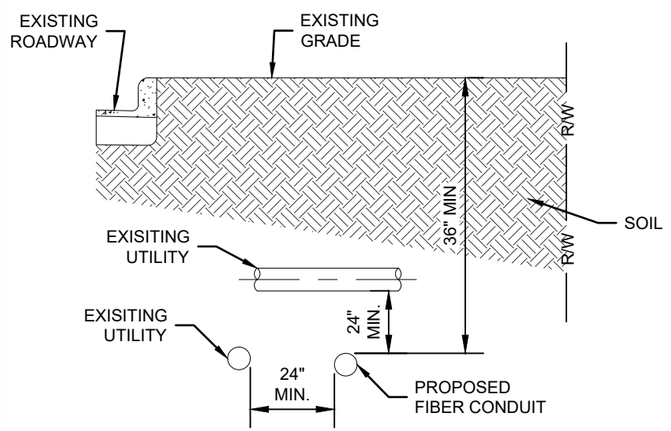
TYPICAL DETAIL "E"
HH WITH ABOVE GROUND MARKER



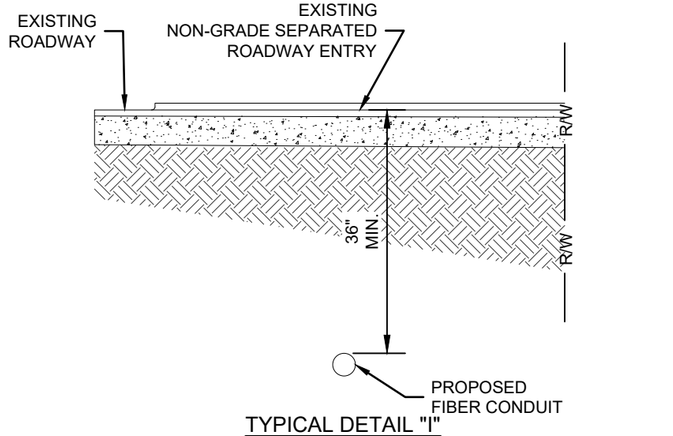
TYPICAL DETAIL "F"
HH WITH FLUSH MOUNT MARKER



TYPICAL DETAIL "G"
PARALLEL TO OTHER UTILITIES



TYPICAL DETAIL "H"
CROSSING OTHER UTILITIES



TYPICAL DETAIL "I"
CROSSING NON-GRADE SEPARATED ROADWAY ENTRY

3/10/2021 - 2:33 PM

REVISIONS

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REGISTERED PROFESSIONAL ENGINEER
BALTHASER A. BRUNGARDT
NO. C 48159
EXP. 6/30/2024
CIVIL
STATE OF CALIFORNIA

BHC
CIVIL ENGINEERING / SURVEYING / UTILITIES
7101 COLLEGE BLVD, SUITE 400
OVERLAND PARK, KS 66210
PHONE: (913) 663-1900

vero NETWORKS

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TYPICAL DETAIL DRAWINGS

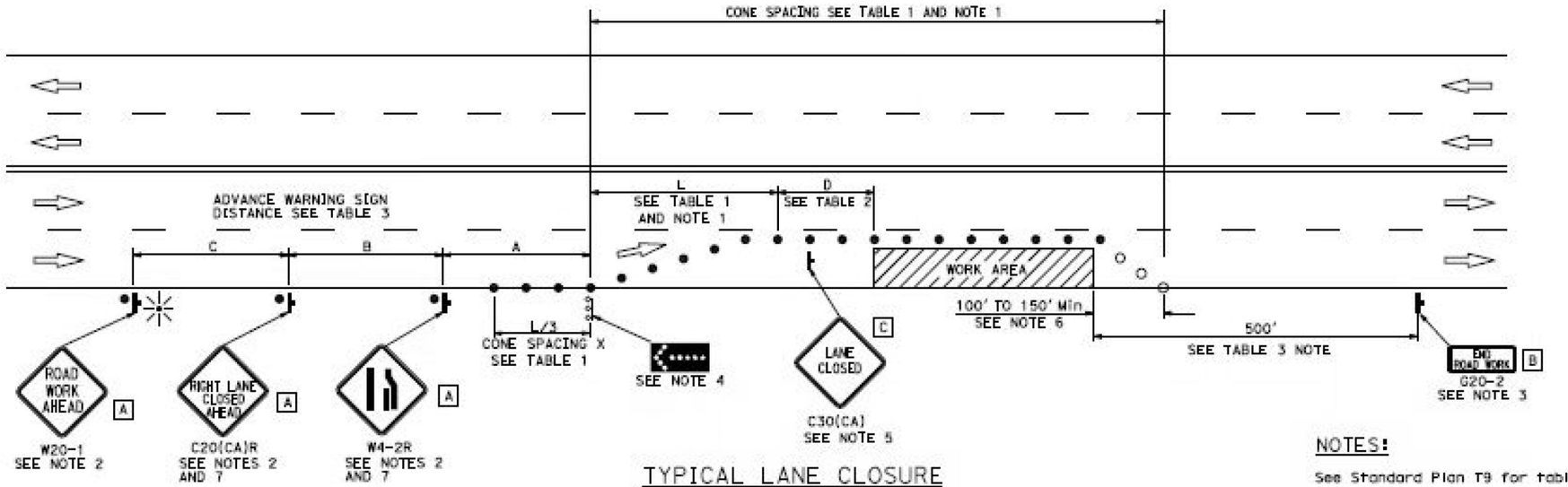
TY.01

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

August 1, 2022
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



TYPICAL LANE CLOSURE

NOTES:

See Standard Plan T9 for tables.

Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

Provide at least one person to continuously maintain traffic control devices for lane closures.

LEGEND

- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL TAPER)
- TEMPORARY TRAFFIC CONTROL SIGN
- FLASHING ARROW SIGN (FAS)
- FAS SUPPORT OR TRAILER
- PORTABLE FLASHING BEACON

SIGN PANEL SIZE (Min)

- A 48" x 48"
- B 36" x 18"
- C 30" x 30"

NOTES:

1. Portable delineators placed at one-half the spacing indicated for traffic cones may be used instead of cones for daytime closures only.
2. Each advance warning sign shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
3. A G20-2 "END ROAD WORK" sign shall be placed at the end of the lane closure unless the end of work area is obvious or ends within the larger project's limits.
4. A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at the top of crest vertical curve or on a horizontal curve.
5. Place C30(CA) "LANE CLOSED" sign at 500' to 1000' intervals throughout extended work area.
6. Length may be reduced by the Engineer to address site conditions.
7. Median lane closures shall conform to the details shown except that C20(CA)L and W4-2L signs shall be used.
8. For approach speeds over 50 MPH, use the "Traffic Control System for Lane Closure on Freeways and Expressways" plan for lane closure details and requirements.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON MULTILANE CONVENTIONAL HIGHWAYS

NO SCALE

T11

2022 STANDARD PLAN T11

310

6-24-22

PROJECT ARCATA TO TRINIDAD
HUMBOLDT COUNTY

ISSUE FOR PERMIT: 5/28/2024

PERMIT NAME:	VERO_HUMBOLDT_07
JURISDICTION:	HUMBOLDT COUNTY
COUNTY:	HUMBOLDT
BORE FOOTAGE:	7936'
STRUCTURES:	6 HANDHOLES

DRAWING INDEX

APPLICATION PREPARED BY:

CHRIS SCHEPMANN
PROJECT MANAGER 2
7101 COLLEGE BLVD. SUITE 400
OVERLAND PARK, KS 66210

BHC
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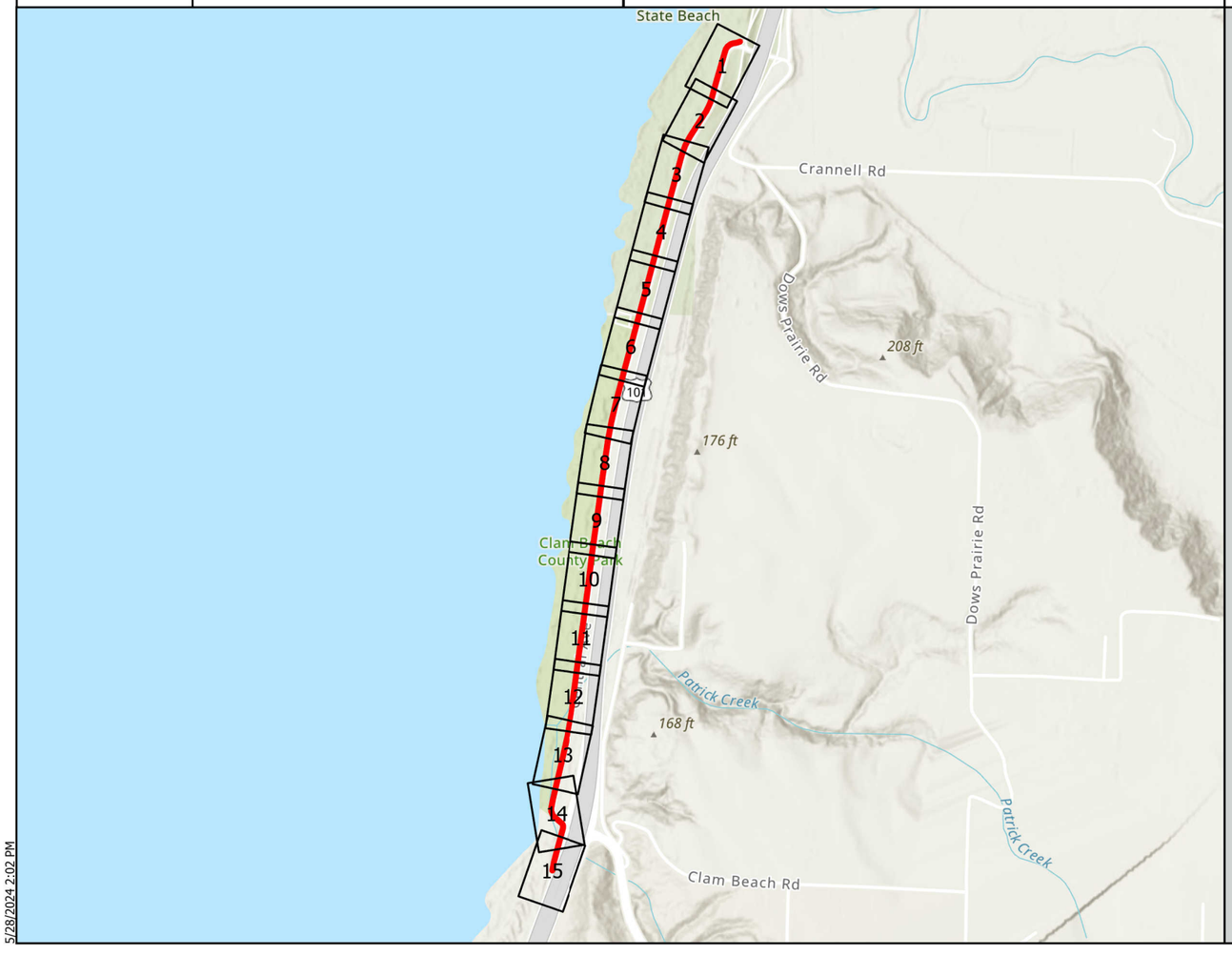

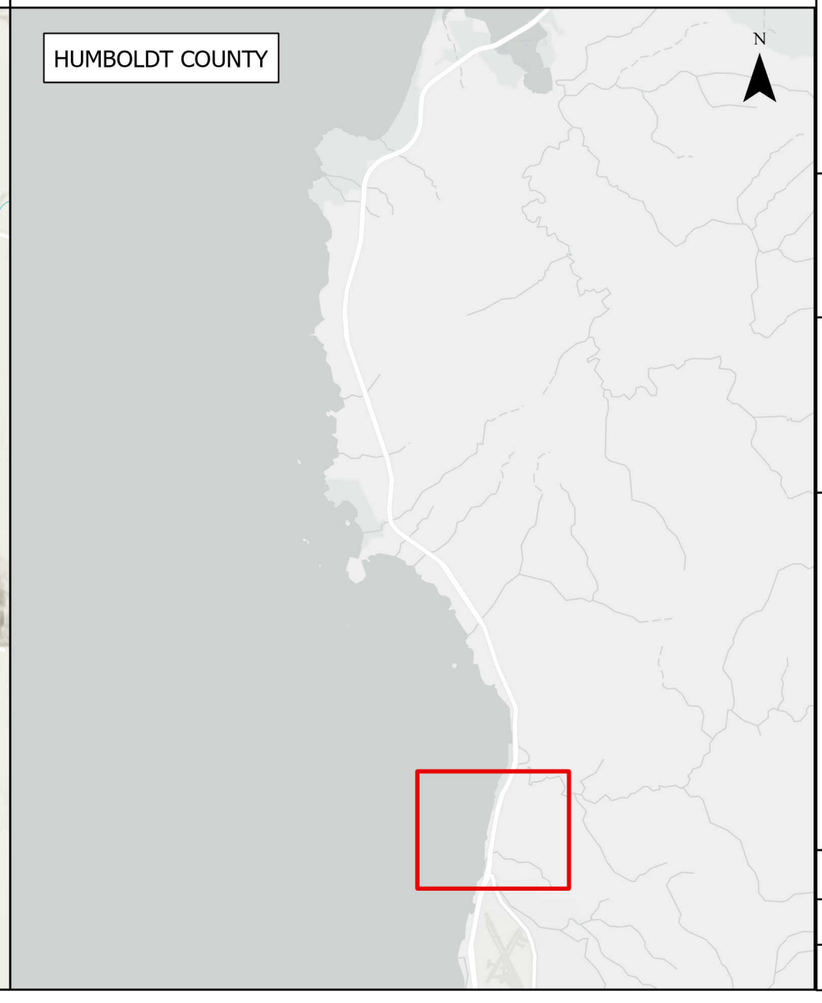

PERMIT ISSUE: 5/28/2024

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HUMBOLDT COUNTY

TRINIDAD TO ARCATA

T.01

5/28/2024 2:02 PM

SYMBOLOGY:

EXISTING:

- Gas Manhole
- Gas Meter
- Gas Valve
- Electrical Manhole
- Electrical Meter
- Electrical Pedestal
- Electrical Vault
- Electrical Cabinet
- Water Hydrant
- Water Manhole
- Water Meter
- Water Valve
- Water Vault
- Sanitary Sewer Manhole
- Sanitary Sewer Other
- Telecom Manhole
- Telecom Pedestal
- Telecom Vault
- Telecom Cabinet
- Traffic Control Light
- Traffic Control Manhole
- Traffic Control Other
- Traffic Control Vault
- Traffic Control Cabinet
- Storm Sewer Grate
- Storm Sewer Manhole
- Storm Sewer Drain
- Light Pole
- Utility Pole w/Light
- Utility Pole
- Electric Line
- Gas Line
- Sanitary Sewer Line
- Storm Sewer Line
- Telecom Line
- Traffic Line
- Water Line
- R/W Right of way
- ESMT Easement

- EOP&CURB Curb and Gutter
- Dirt
- DRIVE Driveway
- EOP Edge of Pavement
- Gravel
- S/W Sidewalk
- Centerline
- Fence
- Tree
- Forest
- Contour Lines
- Wetlands

PROPOSED:

- HH Proposed Vault
- Bore Pit
- Match Line
- Proposed Conduit

ABBREVIATIONS:

CL	Centerline	MMV	Meet Me Vault
CMP	Corrugated Metal Pipe	MON	Monument
CO	County	NO	Number
CONC	Concrete	PRK MTR	Parking Meter
CSG	Casing	P/L	Property Line
CT	Count	PED	Pedestal
CTV PED	Cable TV Pedestal	PED-X SIG	Pedestrian Crossing Signal
CULV	Culvert	PI	Point of Inflection
DBH	Diameter at Breast Height	PKG	Package
		PVC	Polyvinyl Chloride
D.D.	Down Drain	RCB	Reinforced Concrete Box
DEPT	Department	RCP	Reinforced Concrete Pipe
DIA	Diameter	RD MEM	Roadside Memorial
DIR	Directional	REQD	Required
DIST	District	RGS	Rigid Galvanized Steel
DOC	Depth of Cover	ROW	Right of Way
DOT	Department of Transportation	RR	Railroad
		RR HUT	Railroad Signal Hut
DWG	Drawing	SCB	Sprinkler Control Box
DWY	Driveway	SD	Storm Drain/Curb Inlet
E MH	Electric Manhole	SDMH	Storm Water Manhole
E MKR	Electric Line Marker	SEC.	Section
E PED	Electric Pedestal	SF	Silt Fence
E VLT	Electic Vault	SMH	Sanitary Sewer Manhole
EM	Electric Meter	SP	Splice
ENC	Encased	SS CO	Sanitary Sewer Clean Out
ENG	Engineering	SS LIFT	Sanitary Sewer Lift Station
EOP	Edge of Pavement	STA.	Station
EPB	Electric Pull Box	STD	Standard
EXIST	Existing	STR	Section Township Range
FH	Fire Hydrant	SWPPP	Storm Water Pollution Prevention Plan
FO	Fiber Optic		
FO MH	Fiber Optic Manhole	SWT MCH	Switch Machine
FO MKR	Fiber Optic Line Marker	T HH	Telecom Handhole
FO VLT	Fiber Optic Vault	T MH	Telecom Manhole
FOC	Fiber Optic Cable	T MKR	Telecom Line Marker
FS	Filter Sock	T PED	Telecom Pedestal
G MH	Gas Manhole	T VLT	Telecom Access Vault
G MKR	Gas Line Marker	T.P.	Trench Plug
G SD	Grated Storm Drain	TCB	Traffic Control Box
GALV	Galvanized	TCE	Temporary Construction Easement
GEO SRV MKR	Geodetic Survey Marker	TCV	Traffic Control Vault
GM	Gas Meter	TRF MH	Traffic Control Manhole
GV	Gas Valve	TSP	Traffic Signal Light
GWMW	Groundwater Monitoring Well	TYP	Typical
		UG	Underground
HDPE	High Density Polyethylene	UNK MH	Unknown Manhole
		UNK PED	Unknown Pedestal
HH	Handhole	UNK UTL MKR	Unknown Utility Marker
HWY	Highway	UNK VLT	Unknown Vault
IB	Inlet Barrier	USACE	United States Army Corps Of Engineers
ILA	In Line Amplifier		
INC	Incorporated	UTL LP	Utility Light Pole
INT	Intermediate	UTL P	Utility Pole
L/A ROW	Limited Access Right of Way	VDOT	Virginia Department of Transportation
LF	Linear Feet	VLT	Vault
LOC MKR	Locating Marker	VP	Gas Vent Pipe
LP	Light Pole	W MH	Water Manhole
MAX	Maximum	W MKR	Water Line Marker
MB	Mailbox	W SPG	Water Spigot
MH	Manhole	W VLT	Water Vault
MIN	Minimum	WM	Water Meter
MIT	Mitigation	WV	Water Valve
MKR	Marker	X-GATE	Crossing Gate
ML	Maintenance Limits	YRD L	Yard Light

5/22/2024 5:49 PM

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HUMBOLDT COUNTY

ARCATA TO TRINIDAD

T.02

PROJECT CONTACTS

HUMBOLDT COUNTY
KEN FREED
3015 H STREET
EUREKA, CA 95501
(707) 445-7388 EX. 2
KFREED@CO.HUMBOLDT.CA.US

CALTRANS DISTRICT 1
1656 UNION STREET
P.O. BOX 3700
EUREKA, CA 95502-3700
(707) 498-0578
D1PERMITS@DOT.CA.GOV

CONSTRUCTION NOTES

UNDERGOUND CONSTRUCTION

CONDUIT INFRASTRUCTURE CONSTRUCTION

1. RIGHT-OF-WAY PROTECTION AND RESTORATION

1. Contractor shall comply with requirements stipulated by relevant authorities having jurisdiction (City, County, State and Federal), and shall minimize damage to rights of way and ensure all clean up and restoration meets or exceeds such jurisdiction specifications, with all debris and waste removed at Contractor's cost/expense
2. Contractor shall comply with all Environmental Protection agency requirements (State and Federal) and ensure compliance on all projects.

2. MATERIALS

1. CONDUIT
1. HDPE is the default choice for underground conduit, minimum wall thickness SDR-11. The properties and dimensions shall be in accordance with ASTM F2160 standard specification for Solid Wall High Density Polyethylene (HDPE) Conduit unless otherwise approved by Company Project Manager permitting authority. Duct size and number of ducts will be specified on the Engineering Workprints, purchase order or scope of work issued to Contractor. All materials supplied and used by contractors must approved by Company Project Manager.
2. Conduit shall be installed by pulling the duct directly from reels on reel trailers.
• Note: This will ensure as little waste as possible of the Duct, as well as less stress on duct and safer for crew members.
3. Crews will NOT pull duct off reels prior to installing unless there is absolutely no physical way to get a reel trailer set up safely.
• Note: having to shut down a lane to accommodate the reel trailer for pulling duct or any other, other than normal solution, does not meet the criteria of "no physical way"
• Once Duct is in the HH, MH, and or site, etc., they will all be sealed by using the proper duct plugs.
• Photos with Solocator will be taken per written standard. See OSP.1012 Standards Bulletin for further detail.

3. MANHOLES

Manholes provided by contractors must meet Bellcore standards and specifications and be approved by Company Management. All manholes will conform to AASHTO (American Association of State Highway and Transportation Officials) H-20 loading, traffic rated standards.
GPS will be taken at every Manhole placed. Photos with Solocator will be taken at every placed manhole per written
standard. See OSP.1012 Standards Bulletin for further detail. And as required by SOW.

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HUMBOLDT COUNTY

TRINIDAD TO ARCATA

GN.01

2/27/2024 11:05 AM

CONSTRUCTION NOTES

HANDHOLES

Handhole type and manufacture will be specified by COMPANY in the scope of work and the Contractor will be required to purchase and use those for the specific build
Handholes for slack use will be a minimum of 36 inches in depth, 48 inches in length and 30 inches in width Handholes used for splice locations will be a minimum of 48 inches in
depth, 60 inches in length and 36 inches in width
These and any Handhole used on a COMPANY construction project shall be, at a minimum, A Tier 22 with a load rating of 22,000 lbs. minimum If for any reason the contractor is required to acquire COMPANY Handholes, they will meet the above requirements as well as, meeting the Bellcore standards and specifications and be approved by Company Management. All handholes will conform to AASHTO (American Association of State Highway and Transportation Officials) and if required to be in the street or a location where large weight vehicles may sit on and not just cross over them, then they must also be upgraded to a H-20 load rating, traffic rated standards. GPS points will be taken at every Handhole placed Photos with Solocator will be taken at every placed handhole per written standard. See OSP.1012 Standards Bulletin for further detail. And as required by
SOW

SPECIAL DESIGN AND MATERIAL CONSIDERATIONS

1.The contractor shall be responsible for the physical location of ALL foreign utilities within the right-of-way before digging in the vicinity in accordance with local Utility Protection Standards. Any damages to other utilities will be the responsibility of the contractor. Contractor will also be responsible for red-lining all utilities on as-builts
2.Steel pipe shall be considered where obstructions such as buried utilities or other facilities run parallel to the proposed running line and have less than 2 feet of separation.
3.GSP, Steel or PVC Schedule 80 conduit will be proposed for housing HDPE or innerduct at Railroad crossings, river crossings, culvert crossing and other obstacles of the same type crossings.
4.If these methods are used the conduit should extend a minimum of five feet past the edge of the culvert or headwall.
5.All sweeps and field bends and or turns tighter than a 36” radius will require factory fittings at all times

METHODS OF PLACEMENT

PLOWING
1. All OSHA and other governing agencies rules and regulations will apply and be followed
2. Plowing can be considered as an alternative construction method when conditions and governing authorities permit.
3.When plowing is utilized as a construction method, the equipment used by the contractor shall be such as to cause the minimum displacement of the soil. Damage to banks, ditches, driveways, and roads
4.GPS points will be taken at the start and stop of the Plow, every 150 feet along a straight and continuous plow line, and at any and all changes in direction to include drift up or down or side to side in the ROW to ensure running line accuracy.
5. Photos with Solocator will be taken as required in the scope or as needed

TRENCHING/OPEN CUTS

1. All OSHA and other governing agencies rules and regulations will apply and be followed
2. When trenching and open-cutting is an option or requirement, the contractor shall excavate by machine trench, backhoe, hand, etc.
3. The network trench shall be as straight as practicable.
1. The bottom of the trench shall be smooth and free from any sharp edges.
2. The trench shall be kept clear of debris and loose rock.
3. All changes in trench grade shall be gradual
a. Note: The vertical change in grade should not exceed (1.5') within (6') in length.
1. Prior to duct placement in the trench, the duct shall be bundled, tied and or bound by an approved method to eliminate the possibility of the duct twisting and tension shall be applied to the duct to eliminate waving in the trench.
2. Duct shall be placed in the center of the excavation and as straight as practicable. Excessive waving of the duct within the trench will not be allowed.
3. All open trenches and other excavations shall be backfilled at the end of each working day. Any open trench or excavation not backfilled may be covered as approved by the governing authority's rules and regulation
4. GPS points will be taken at the start and stop, every 25 feet along a straight and continuous trench line, and at any and all changes in direction to include drift up or down or side to side in the ROW to ensure running line accuracy.
5. Photos with Solocator will be taken as required in the scope or as needed

BORING

1. All OSHA and other governing agencies rules and regulations will apply and be followed
2. When Boring is allowed the contractor shall use Directional Boring as the preferred method.
3. The contractor will be responsible for all unsuccessful bore attempts. All unsuccessful bore attempts will be filled with grout or as required by the governing authority.
4. The contractor shall not drain any excess material into storm, sanitary systems, ditches or anywhere on the Right of Way.
5. When crossing all deadly utilities they must be daylighted by potholing to verify there is sufficient separation from the Company duct, or if paralleling within 10’ horizontally.
1. Note: separation is 24” without written authorization from COMPANY or the governing agency or agencies.
6. All verifications will be physical verification on site of the actual utility
7. Bore logs will be kept and document the start, the stop and every 10 feet in between.
8. The contractor shall submit all boring logs and profiles to Company
9. In general the vertical change in grade shall not exceed one and a half feet (1.5') in six feet (6') in length.
10. GPS points will be taken at the start and stop of every bore, every change of stem (i.e., every 10 feet when using 10-foot stems, 15 feet when using 15-foot stems etc.) along a straight and continuous bore line, and at any and all changes
in direction to include drift up or down or side to side in the ROW to ensure running line accuracy and depth accuracy.
11. Photos with Solocator will be taken as required in the scope or as needed

GENERAL RESTORATION

1. All OSHA and other governing agencies rules and regulations will apply and be followed
1. All rock and debris brought to the surface and not used during backfilling operations shall be removed and disposed of in an appropriate manner.
2. Improved landscape, lawns, shrubs, and hedges removed or damaged shall be replaced in like kind.
4. All areas disturbed by the construction activities in public rights-of-way shall be restored and seeded per the specifications of the governing authority.
5. The contractor shall promptly repair or replace any other property damaged during construction.
6. Contractor shall remove all duct installation debris including construction spoils and remaining installation materials from any public or private properties.
a. NOTE: Such material to be removed would also include litter generated by the construction crews.
7. No debris or litter should ever be disposed of in a trench or other telecommunication excavation. The contractor is responsible for the proper disposal of all soil, concrete, asphalt or other debris.
8. No asphalt shall be permitted in the backfill.
9. Photos with Solocator will be taken before, during and after restoration and as needed

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GN.02

2/27/2024 11:00 AM

CONSTRUCTION NOTES

PAVEMENT RESTORATION

1. All OSHA and other governing agencies rules and regulations will apply and be followed
2. It is recommended that Cobblestone or old brick in historic areas, be numbered, photographed, removed, and then stored for replacement. Care must be taken to restore historic areas to their original condition and "look."
3. Pavement, driveways, and sidewalks shall be restored to their original or better condition within five (5) business days or as soon as practicable, following duct placing operations.
4. The backfill within the roadway shall be placed and compacted in not more than six-inch (6") lifts from the bottom to the finished grade.
5. Photos with Solocator will be taken before, during and after restoration and as needed

BACKFILL

1. The trench shall be backfilled and compacted to the satisfaction of Company and local authorities, promptly behind duct placement.
2. The backfill shall be the trench excavated materials, provided the excavated materials are free from debris, rocks measuring less than two inches (2") in diameter and other unsuitable materials.
3. Backfill within the roadway shall be placed and compacted per the governing authority specification or to ninety percent (90%) modified proctor in non-traveled areas and ninety five percent (95%) modified proctor in traveled areas whichever is greater.
4. Company 's engineer has the right to test the soil compaction randomly. If soils do not meet the compaction requirements, the contractor will be directed to remove fill until proper compaction is found. The contractor will not have any claim to additional time or additional costs.
5. If Company 's engineer tests 5 locations that fail compaction, then Company 's engineer can require all backfill lifts to be tested. The contractor will be required to pay for all the testing including, but not limited to, labor, equipment and lab tests.

DEPTH OF PLACEMENT

1. Except where specified in the drawings, approved by Company , or permit specifications dictate a different depth, the top duct shall be placed a minimum of Forty-two inches (≥42") below grade or as required by authority having jurisdiction with a minimum of twelve inches (12") of separation from foreign object or as required by object's owner which is greater.
2. Where the network crosses gullies, ditches, streams, rivers, and washes, the conduit will be placed at a minimum depth of forty-eight inches (48") below the bottom of the waterway unless the controlling authority requires additional depth in which case the greatest depth will be maintained.
3. Where the network route crosses railroads, the network shall be placed at a minimum depth of sixty inches (60") below the base of rail or sixty inches (60") below the paralleling drainage ditches, or at greater depths as required by permitting authorities which is greater.
4. Where the network crosses existing subsurface pipes, cables, or other structures, the network will be placed to maintain a minimum of twelve inches (12") separation (preferred to be 24" whenever possible) from the foreign object or a minimum separation as required by the object's owner, whichever is greater.
5. For special cases when minimum cover cannot be obtained due to the location of subsurface obstructions and/or other utilities, these special considerations will be acceptable, but only with Company Management approval:
a. BSP/GSP or Concrete Encased HDPE will be used with cover between 12" to 35", with Middle Mile Management approval.

COUPLER INSTALLATION

1. Barbed Couplers will be utilized and installed per manufacturer's specification, buried flush with the path/bore/trench of the conduit.
2. Barbed Couplers are the only authorized couplers for any and all COMPANY HDPE duct
3. To prevent the bundling of Barbed couplers at one location or hole and to meet requirements for depth of cover; the couplers must be staggered and sequenced every six inches between multiple conduits and should not overlap or touch another coupler.
4. If micro duct is used (i.e., 7way, 6way, 4way etc.,) a rubber boot will be applied over the micro duct couplers and then heat shrunk for added strength both vertically and horizontally, as well as,sealing the staggered couplers from foreign substances
5. All locations of barbed couplers should be noted and correspond to a depth and station number on the as-built drawings.
6. All Couplers at all Coupler locations will be photographed with Solocator and provided as a deliverable to Company , to include but not limited to the GPS location, station number and a number of all couplers, barbed and or micro coupler, at each location. And as required by SOW.
7. See OSP.1012 Standards Bulletin for further detail.

CABLE MARKER SIGNS

Marker Poles
1. Marker Poles will be set at each Splice, Handhole and Manhole location.
a) The cable marker posts shall be placed whenever possible within a one-
foot offset from the back of the Handhole/Manhole, centered on the back side of the Handhole/Manhole between it and the outside ROW line
b) if due to permitting agency rules, Marker Poles are not allowed then
alternative means will be used to mark these assets.
c) Any deviation from Marker Poles to other devices will require COMPANY written approval.
2. Marker poles will be set at all crossings (i.e., road, river, rail, etc.)
3. Marker poles will be set at all changes of direction in the running line.
4. Marker Poles will be set in such a way so there is never more than 500lineal feet between any two Marker Poles.
5. Marker Poles will be set in such a way that no matter where you stand onthe ROW, you will be able to see a Marker Pole
6. GPS points will be taken at every placed Marker Pole
7. Photos with Solocator will be taken at every placed marker Pole And as required by SOW.

DEPTH OF MARKER SIGN

1. Contractor shall bury the marker post as per Manufacturer's specification, at twenty-four inches (24") below grade and ensure the cross member has been added to ensure stability and the Marker Pole can't be lifted.
2. The cable marker posts shall be placed whenever possible directly over the the network running line or as close as the permitting authority allows.
3. Any offset shall be permanently noted on the space provided by the cable marker sign.
4. All Marker Posts are to be GPS'd

TRACER WIRE

1. When a trace wire is required, a minimum of a 10-gauge poly coated solid copper tracer wire will be placed with every linear foot of duct placed,regardless of the type of construction
2. If armored cable is used, then the locate wire from the enclosure to the Locate test Station pole will be poly coated solid # 6.
3. Locate marker posts, flush mount finks, manholes, handholes, and all other tracer access points will be connected to the tracer/ground wire for locating buried facilities.
4. Tracer wire connectivity tests must be conducted by the contractor to ensure the entire plant is locatable.
5. Damaged tracer/ground wires will be repaired immediately with minimal connectors.
6. COTT or other Company acceptable test stations will be placed at each manhole/handhole, using the ground tree model to ground tracer wire at splice locations. see OSP.1003 – Splice Point Grounding for Locate Test Point Stations in Appendix A

PROOFING DUCT

1. All conduits, regardless of size will be verified for ovality, turning angle, and damage by proofing the duct per manufacturer specification and or with an 85% space capacity mandrel whichever is greater.
2. The mandrel will be made of metal and not to exceed the length of 3 times the diameter of the duct.
3. Proofing of the duct shall be completed with air pressure of at least 50 PSI and no more than 150 PSI or the max duct PSI whichever is less.
4. All proofing results must be witnessed and documented by an appropriate Company representative.
5. Damaged duct should be repaired immediately with minimal couplers.

SEALING DUCTS

All ducts must be properly sealed per manufacturer specifications with Duct plugs or an equivalent approved by the Company Project Manager. Ducts or duct plugs should be labeled with the direction of the conduit path.
All ducts with FOC present must be properly sealed with a half Moon or equivalent plug approved by the Company Project Manager.

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HUMBOLDT COUNTY

TRINIDAD TO ARCATA

CONSTRUCTION NOTES

MANHOLE AND HANDHOLE CONSTRUCTION

1. Handholes and manholes shall be installed by the contractor as designated in the construction drawings. Installation shall include all grouting, installation of extension ladders, required extension rings, and all related work for the complete installation of the structure. The design loading for all man-holes and handholes shall be capable of supporting H-20 loading,
per the American Association of State Highway and Transportation Officials (AASHTO.)
2. All Intermediate Slack Vault (IEV) Hand holes will be sized to a minimum of 30" in width x 48" in length x 36" in depth and open bottom
3. All Network Splice Vault (NSV) HHs will be sized to a minimum of 36" in width x 60" in length x 48" in depth and open bottom.
4. The handholes shall be set on a base minimum thickness of six inches (6") or as provided in manufacturer's specifications consisting of clean gravel or crushed stone with a minimum diameter of three-quarter inch (3/4") and a diameter maximum one and one-half inch (1.5").
5. The ducts shall enter and leave hand holes exactly opposite each other within the handhole to facilitate the cable coils and/or splice closures. When ever possible the duct will enter from underneath the Handhole, not the sides. Each duct length inside handholes and manholes shall be a minimum length of six inches (6") from the inside wall of the HH, but no more than twelve inches (12").
6. Micro duct should be a minimum length of ten inches (10") from the inside wall of the HH, but no more than sixteen inches (16") and then four inches (4") of the outer sheath should be removed to allow the unfettered access to the individual micro ducts.
7. At all splice locations the contractor shall install a 3-rod ground tree for fiber optic cable grounding in accordance with the detailed drawings provided in
Bulletin OSP.1003 – Splice Point Grounding for Locate Test Point Stations.
• Ground Trees will be GPS'd
7. In a Metro area, Handholes shall be set flush to grade or to the specifications of the governing authority or in accordance with the detailed drawings.
8. When outside a metro area, the handhole is to be buried and it should be set with a minimum of 18 inches (18") and or a maximum of twenty-four (24") cover.
9. Manholes shall be installed in the same manner as handholes with the following exceptions:
• The contractor shall not use material less than five thousand (5,000) pounds per square inch (PSI) in density to shim frames and covers.
• Frames and covers shall be installed to match existing grade and shall be
shimmed with either steel or concrete spacers.
• All manhole penetrations shall be sealed with a pre-approved non-shrink grout.
• All conduits, ducts, or casings that enter the manhole wall shall be back filled to 95% compaction by using sand and water or slurry to insure minimal settling of the pipe. This action will help eliminate damaged conduits.
11. Innerduct shall have a gradual sweep into the handholes and manholes, if the depth of innerduct bury exceeds forty-eight inches (48"). The handholes and manholes shall not be installed on steep banks or slopes where the cover cannot be leveled within a tolerance of one-inch (1") of drop to twelve
inches (12") of grade.
12. All innerduct or conduit entering the manhole shall be flush and horizontal to the hole of penetration on the manhole. To prevent settlement and conduit damage near the entry of the manholes, the soil or bottom of the trench will meet 95% compactions by the use of various backfill materials. The suggested method is sand and water or slurry.
13. Upon completion of the innerduct placement in the handhole and manholes, the innerduct shall rest freely without tension. Innerduct on each side shall be plugged and sealed as previously noted.
14. All HH's and MH's, 3 rod ground trees, duct entrances and anything else called out in 4.9 shall be photographed with Solocator and provided as a deliverable to Company . to include but not limited to the GPS location, station number. See OSP.1012 - QA Photo App Standard Bulletin.

SPECIAL CONSTRUCTION CONSIDERATIONS

RAILROAD CROSSINGS

1. All work shall be performed in accordance with Railroad authority and other permitting agencies.

STREAM AND CANAL CROSSINGS

1. Contractor shall comply with all Federal, State, county and local laws, rules, regulations and Company obtained permits when crossing lakes, canals, streams, or river crossings.
2. Restoration and erosion control shall be performed as required by the agency having jurisdiction and as approved by Company .

GAS LINE CROSSINGS

1. Extra care must be taken when working around gas lines.
2. All deadly utilities will be exposed to verify 24" separation from Middle Mile Management duct package when crossing
3. All placements are subject to additional requirements in accordance with standards and specifications of the gas line owner and permitting authorities.

ROCK CONSIDERATIONS

NO ROCK CLAUSE:

• NO ROCK CLAUSE Contracts and RFPs must clearly define whether rock clauses are applicable to a specific project or not.
• For contracts that have no allowances for rock considerations, the contractor is responsible and fully accountable for all construction regardless of the type and amount of rock encountered during construction.

DRAINAGE CULVERTS

1. If underground drainage tile is encountered as the network is installed, the network shall be installed as per drainage district or other governing authority specifications.
2. The contractor consistent with the pre-construction conditions and materials will repair all damaged drainage tiles. In case of a dispute regarding the proper repair of damaged tile lines, the repair specifications of the county Soil and Water Conservation District will be followed.
3. The contractor will be responsible for repair of tile damaged by the construction.
4. Repairs made to damaged tile line must enable the tile lines to operate as well or better after the repairs are completed as before they were damaged.
5. The contractor shall immediately repair any tile lines known to be damaged. Permanent tile line repairs will be made within two (2) days of the date the damage occurred, weather permitting.
6. Where a tile is damaged, the contractor must station the location and indicate the location on the red line as-built
7. Prior to back filling, a Company representative and the governing authority must approve of the final tile repair.

EXISTING UTILITIES AND SUBSURFACE OBSTRUCTIONS

1. Prior to excavation commencement, contractor shall obtain a dig ticket by calling the appropriate Utilities Protection Center number per applicable jurisdiction (state, county, city, federal).The Contractor shall obtain and maintain the Call Before you Dig Programs in all construction areas. Contractor shall also notify all existing utility owners not participating in the CBUD Programs. For Company approval and inspection, contractor shall document and maintain records that evidence the notification of all utility owners no later than seventy-two (72) hours prior to the start of construction. The records shall include date, time of day, name of individual contacted, name of companies contacted, telephone number, and confirmation number.
2. Damaged Utilities: Any utility damage will be reported to the utility owner and Company immediately. This includes any damage to Company duct or cable. Contractor will fully cooperate with Company to facilitate any repairs necessary and provide complete documentation of all activities and restoration.

FENCING

1. Safety fencing shall be erected, around the contractor's excavations and or open holes and equipment left open or out over night or weekends on the ROW or any publicly accessible place.
2. Safety fencing will consist of 6-foot T-Posts and high visibility plastic safety snow fence erected per local, state or federal rules and guidelines

DAILY CLEAN-UP

The contractor shall maintain a clean and hazard free work area including daily removal of all spills, unused or unacceptable excavation materials, and waste. The contractor should sweep all affected street work areas and side-walk areas daily in accordance with Federal, State, county, city and local laws, rules, regulations and standards.

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HUMBOLDT COUNTY

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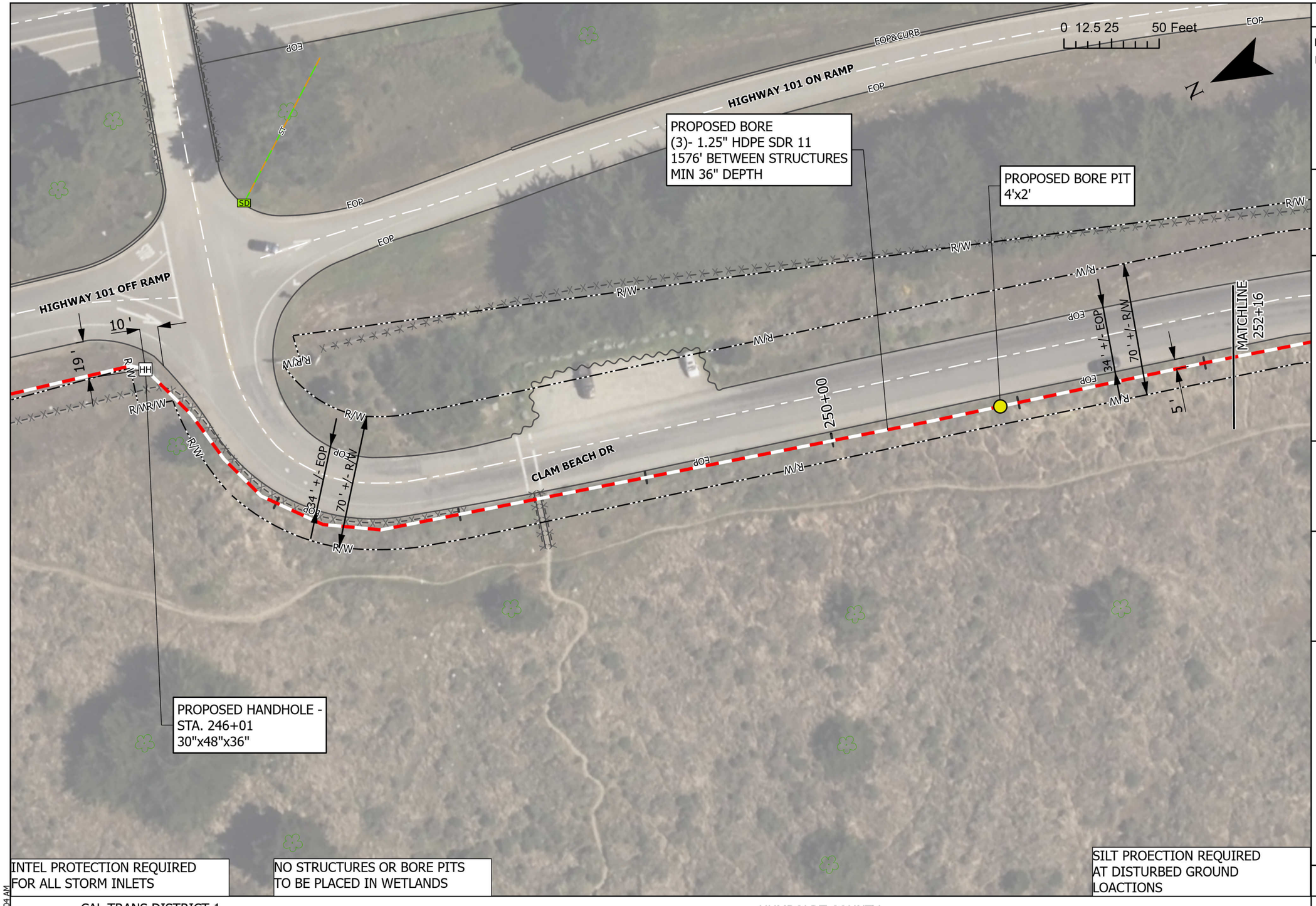

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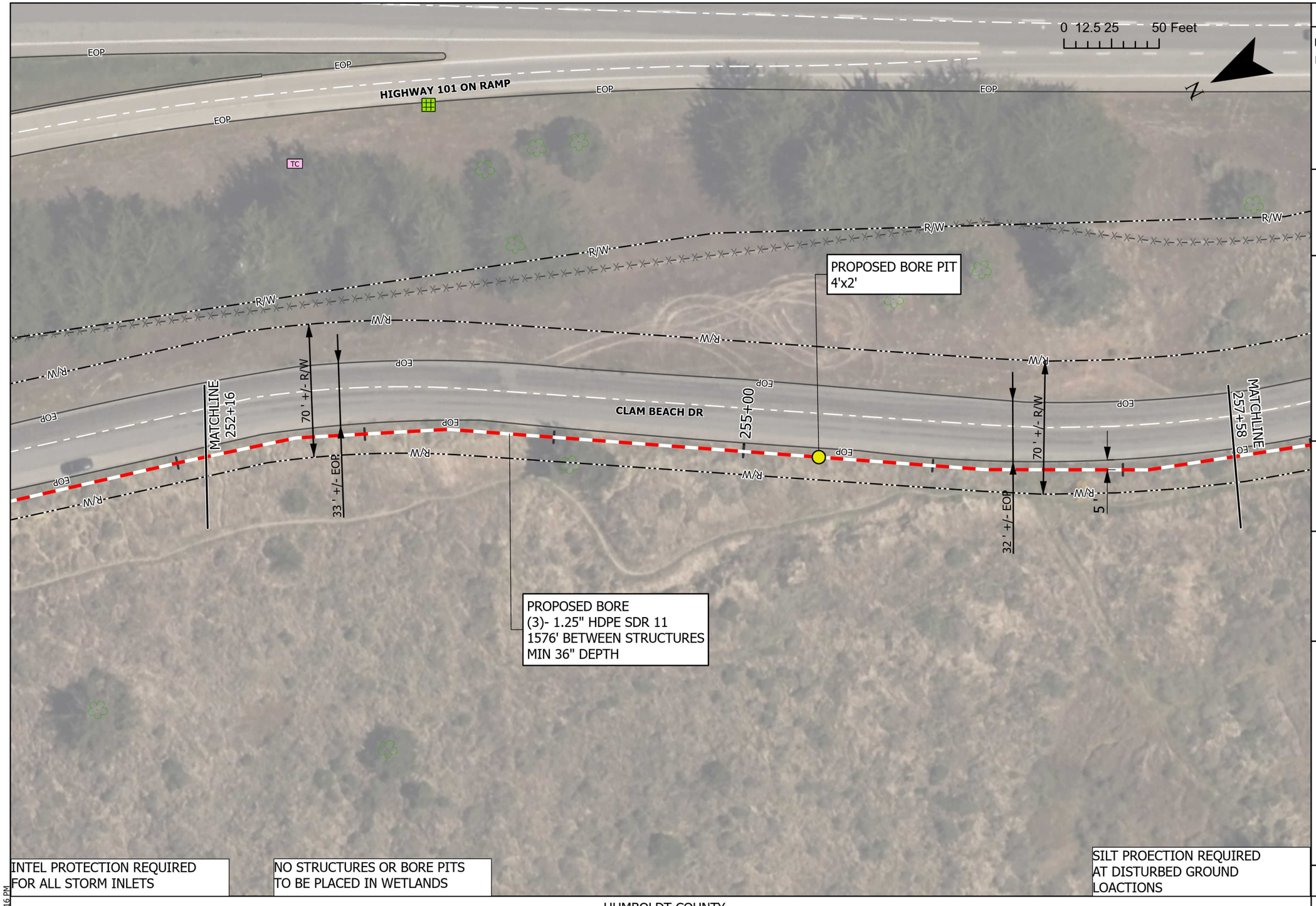

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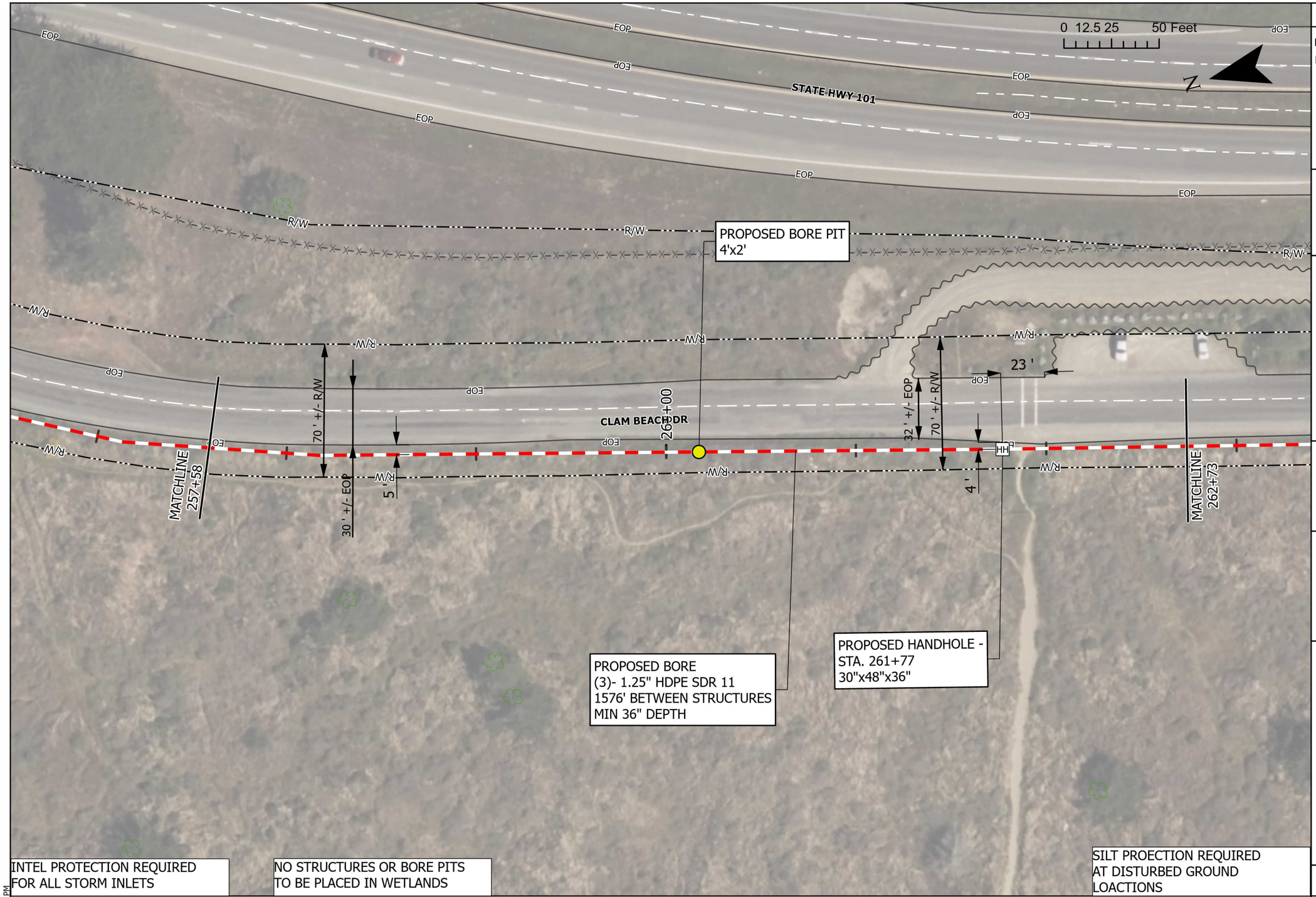

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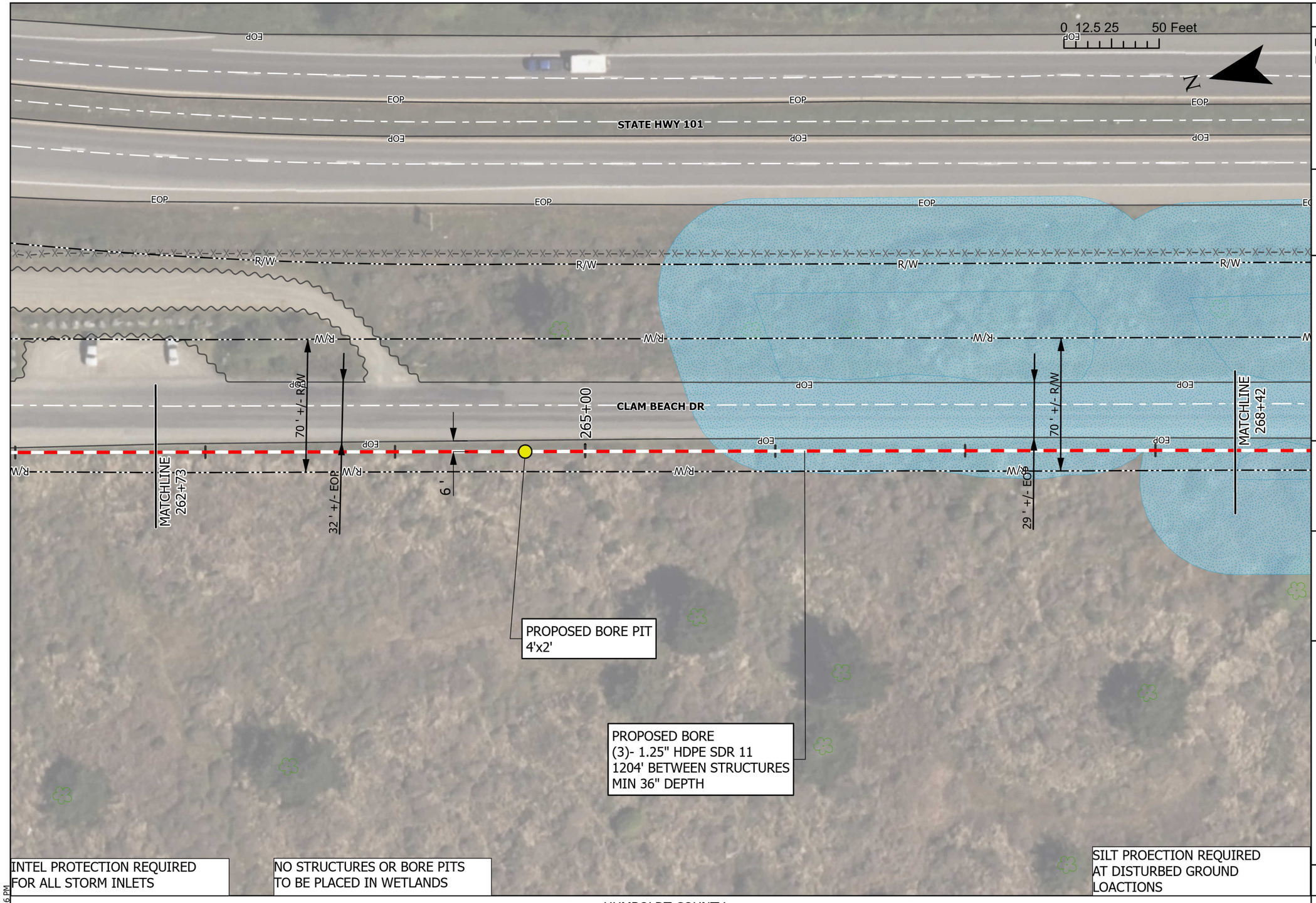

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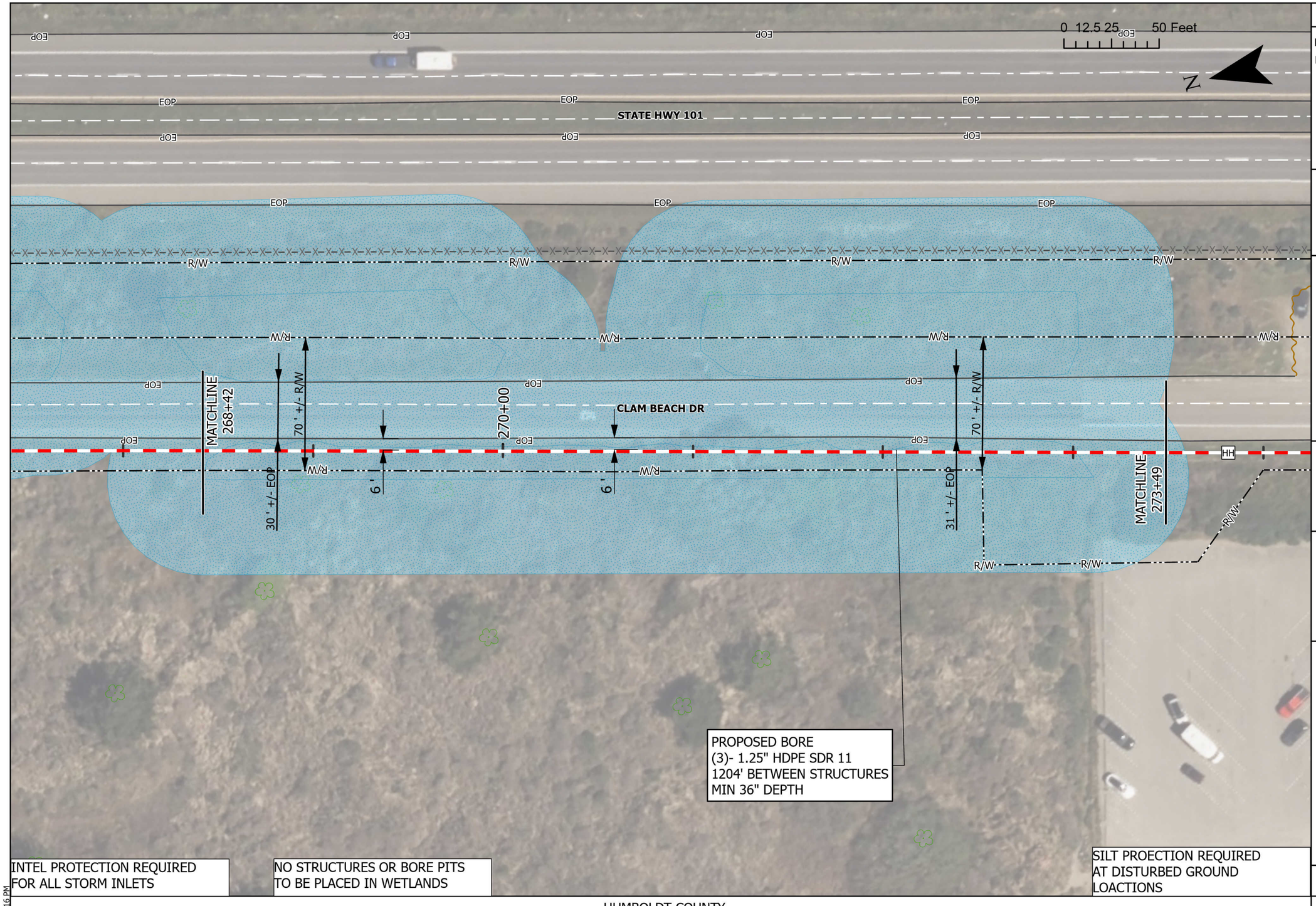

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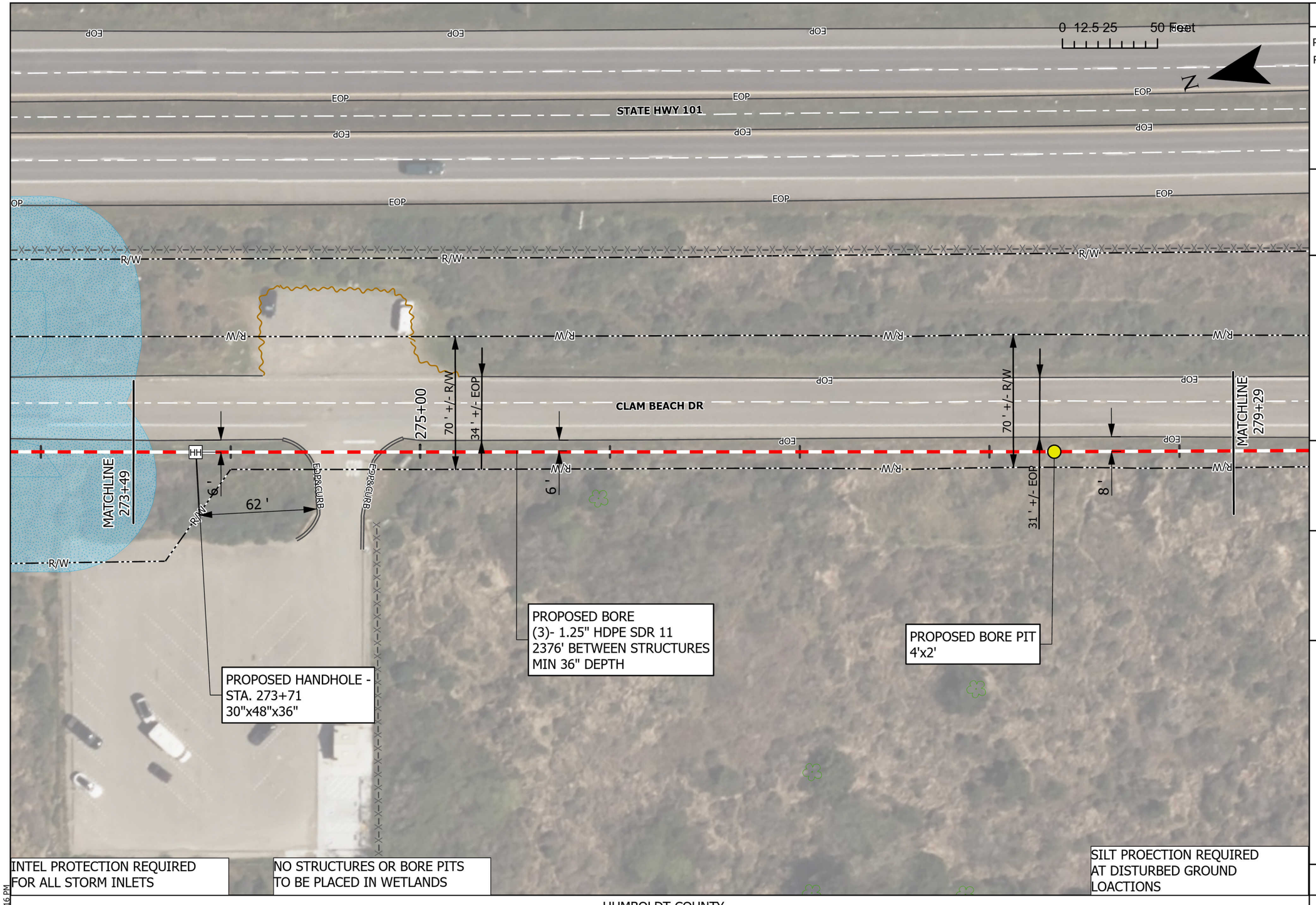

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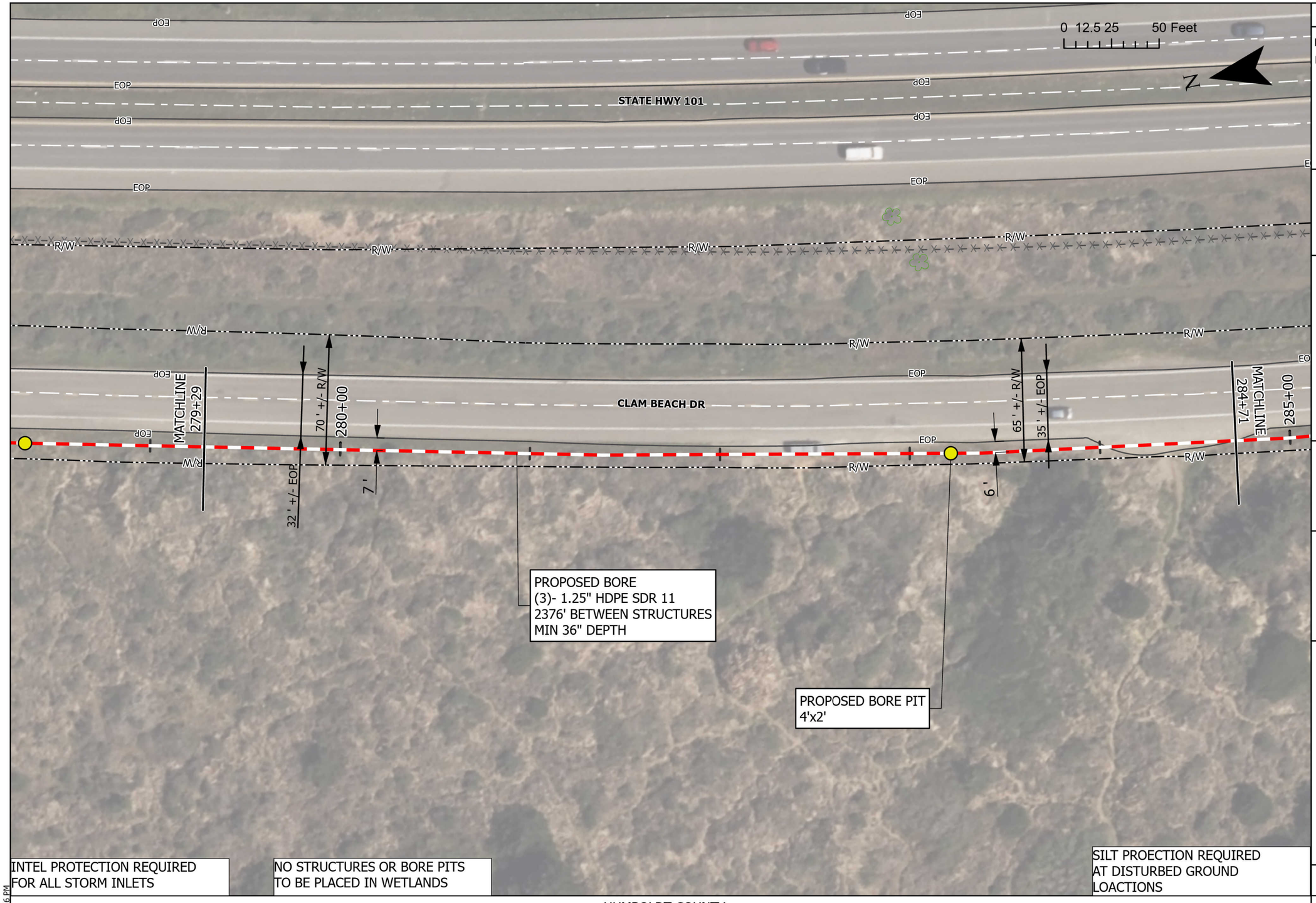

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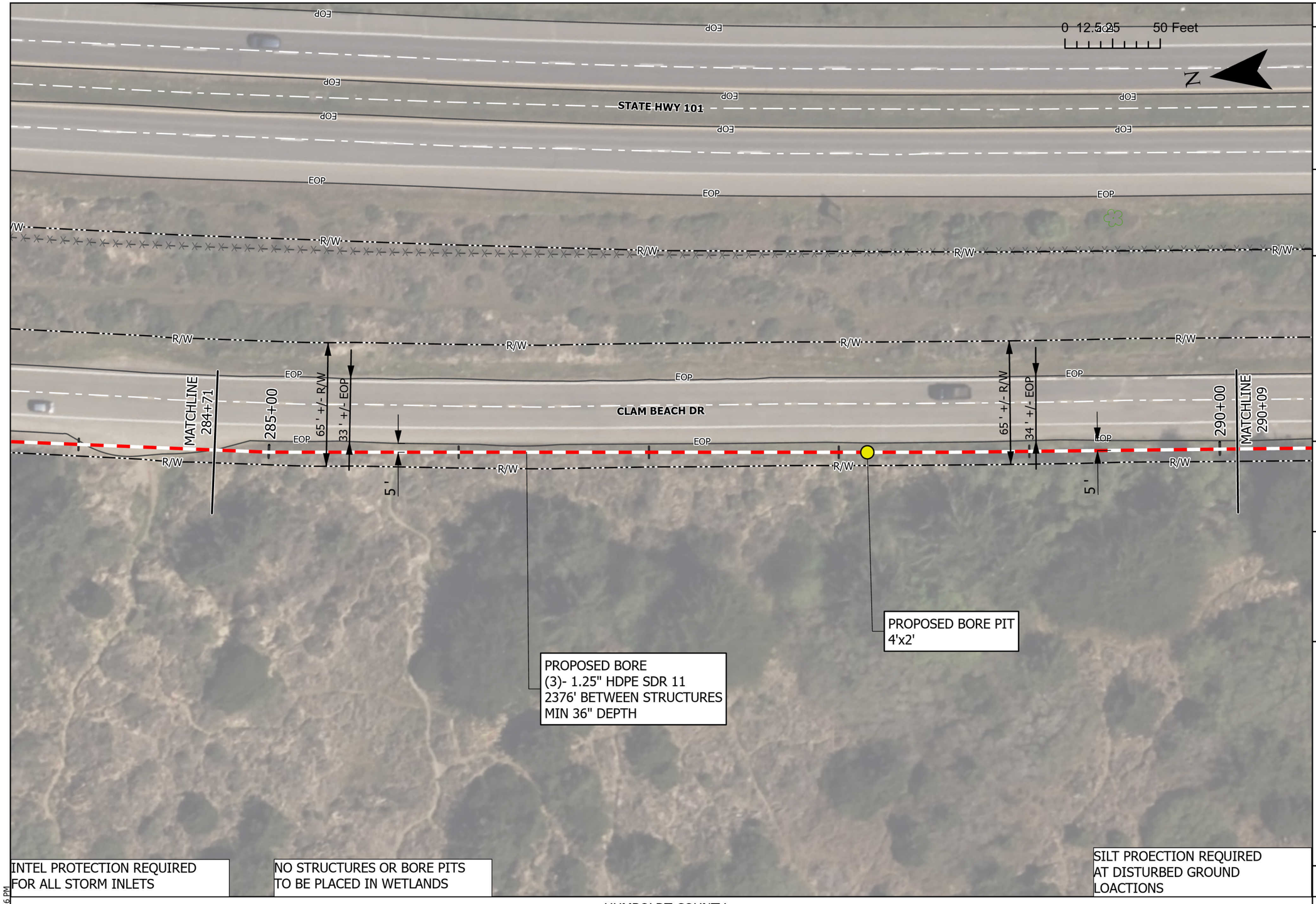

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7101 COLLEGE BLVD. SUITE 400
OVERLAND PARK, KS 66210
PHONE: (913) 663-1900

vero NETWORKS

California 811

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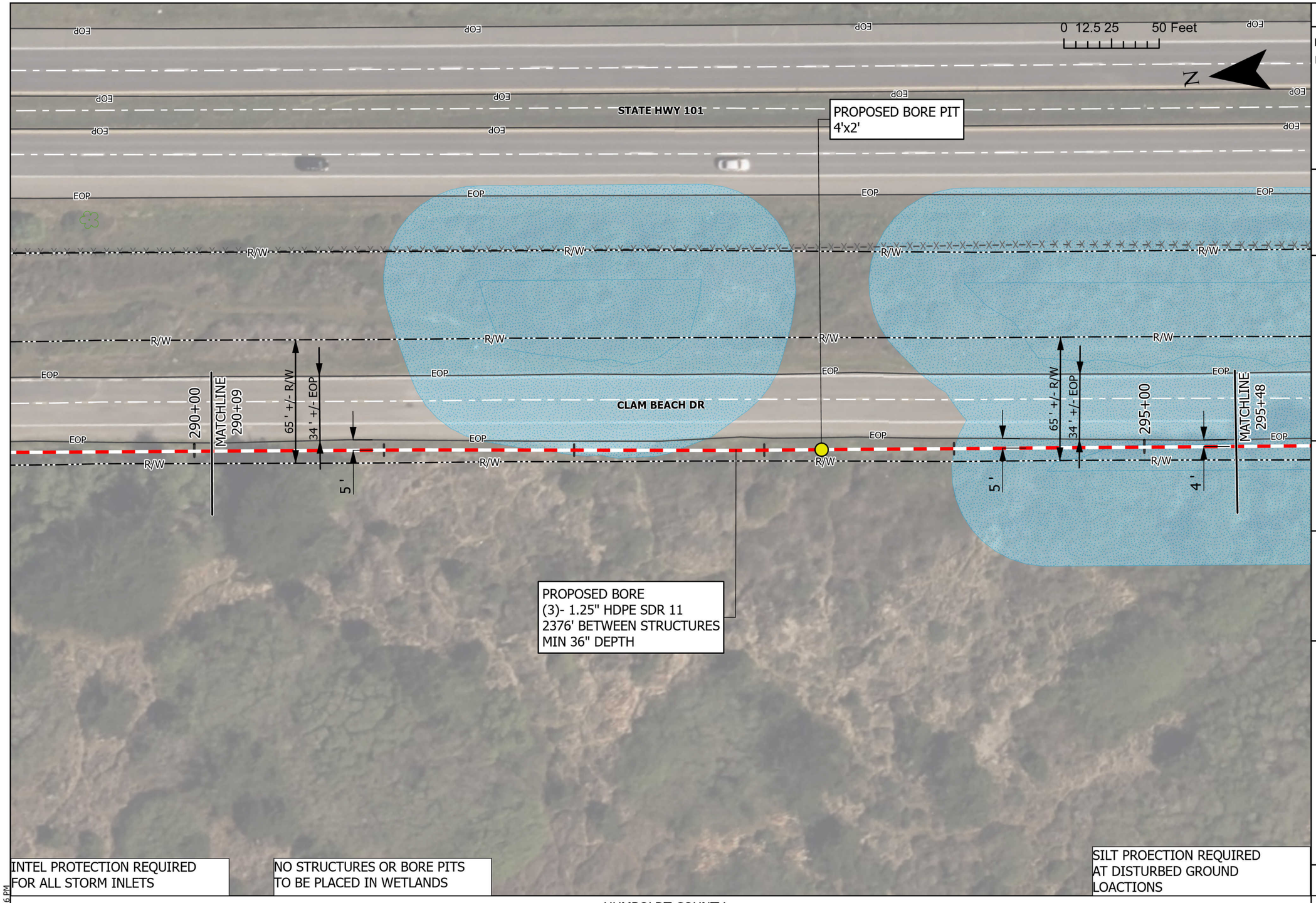
HUMBOLDT COUNTY

TRINIDAD TO ARCATA

PL.8

5/28/2024 2:16 PM



Scale: 1 INCH: 50 FEET

PERMIT EXPORT: 5/28/2024

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REGISTERED PROFESSIONAL ENGINEER
BALTHASER A. BRUNGARDT
NO. C 48159
EXP. 6/30/2024
CIVIL
STATE OF CALIFORNIA

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PL.9

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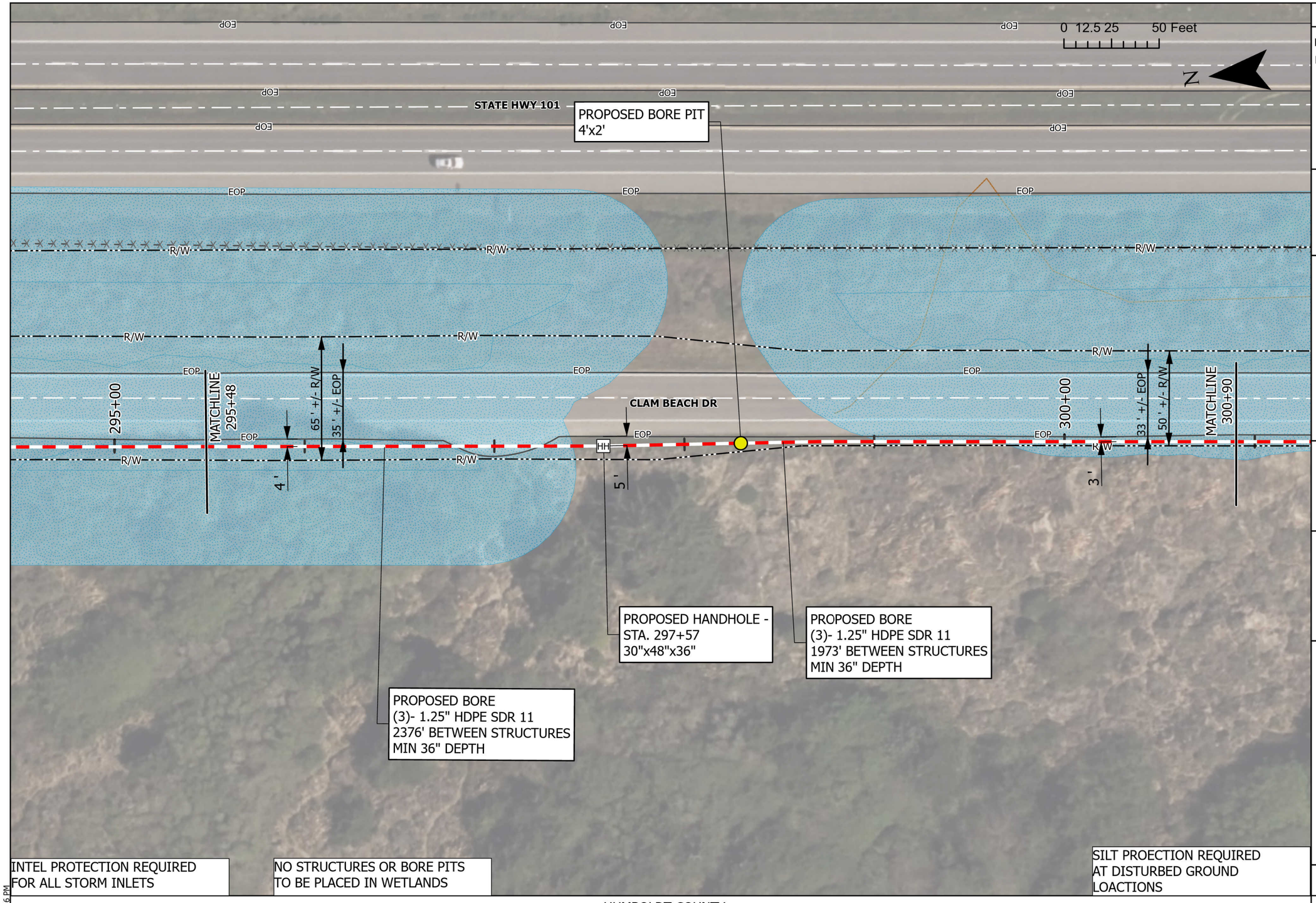

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PL.10

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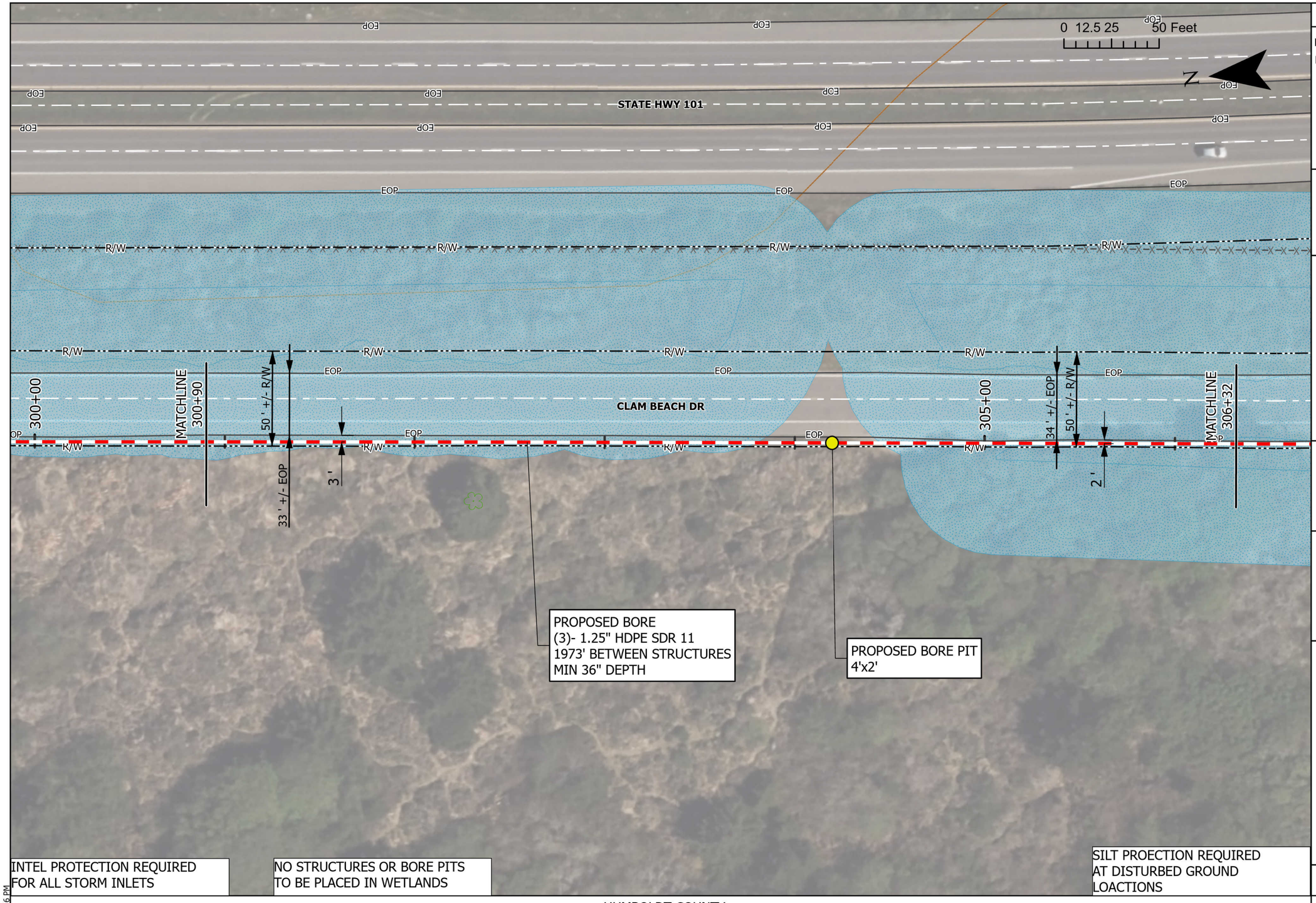

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HUMBOLDT COUNTY

TRINIDAD TO ARCATA

PL.11

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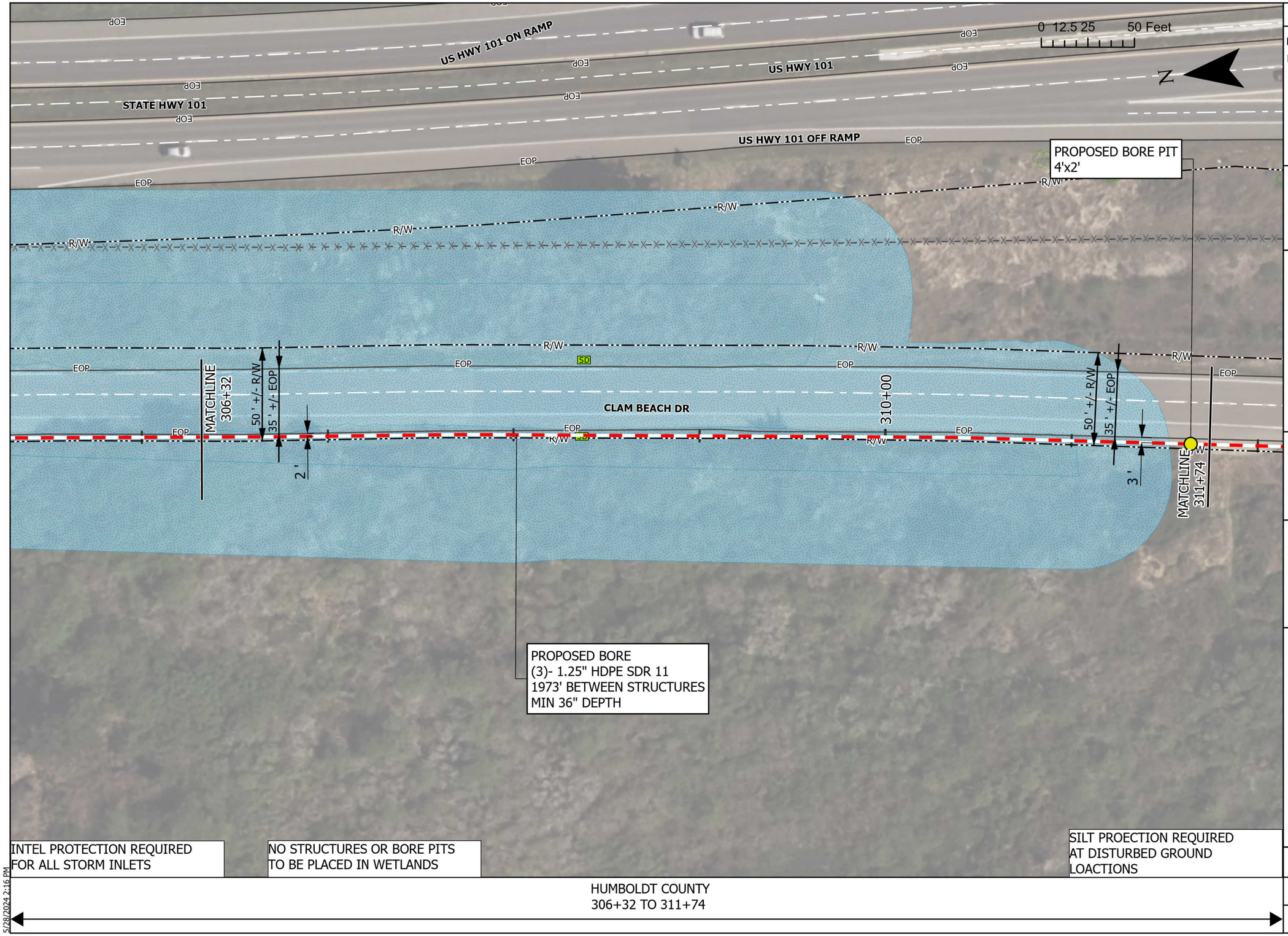

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HUMBOLDT COUNTY

TRINIDAD TO ARCATA

PL.12

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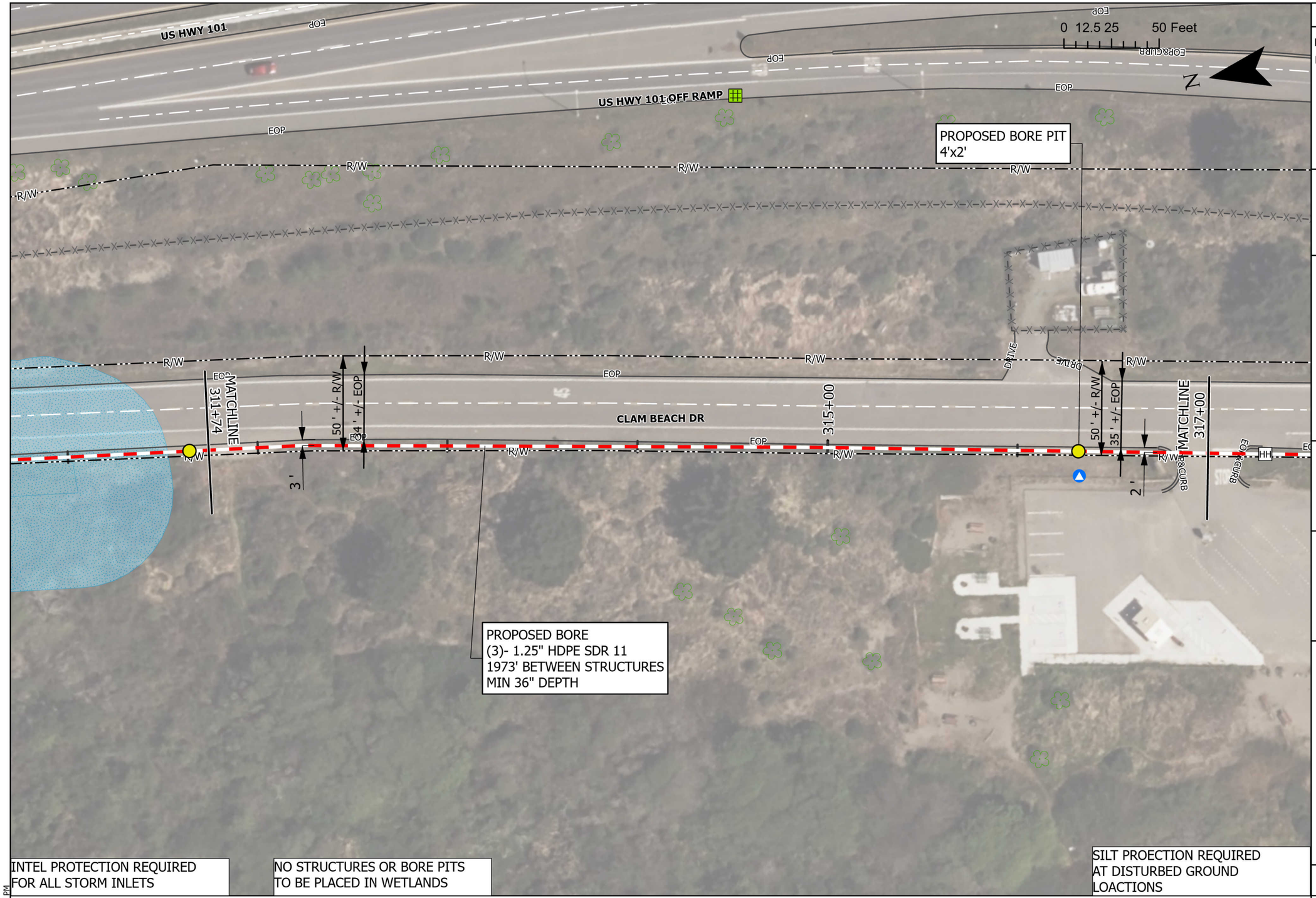

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HUMBOLDT COUNTY

TRINIDAD TO ARCATA

PL.13

5/28/2024 2:16 PM

PROPOSED HANDHOLE -
STA. 317+30
30"x48"x36"

PROPOSED BORE
(3)- 1.25" HDPE SDR 11
808' BETWEEN STRUCTURES
MIN 36" DEPTH

INTEL PROTECTION REQUIRED
FOR ALL STORM INLETS

NO STRUCTURES OR BORE PITS
TO BE PLACED IN WETLANDS

SILT PROECTION REQUIRED
AT DISTURBED GROUND
LOACTIONS

317+15 — HUMBOLDT COUNTY — 320+64 — CAL TRANS DISTRICT 1 — 322+74

5/28/2024 2:32 PM

0 12.5 25 50 Feet

Scale: 1 INCH: 50 FEET

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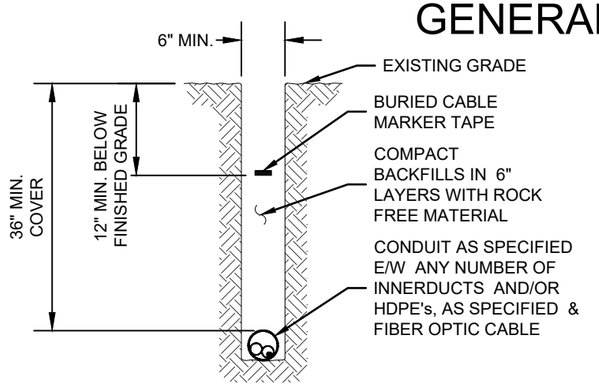
HUMBOLDT COUNTY

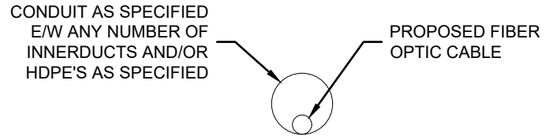
TRINIDAD TO ARCATA

PL.14

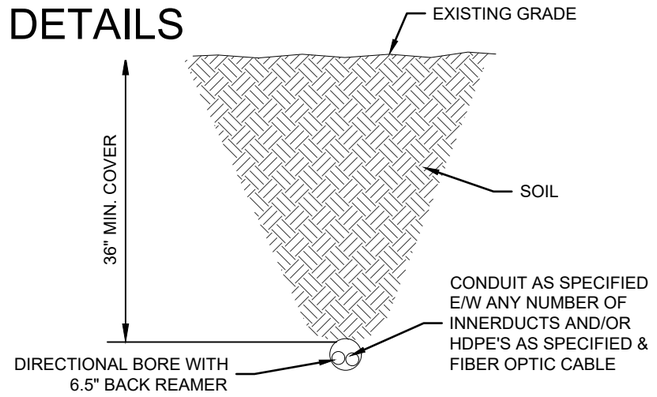
GENERAL UNDERGROUND CONSTRUCTION DETAILS



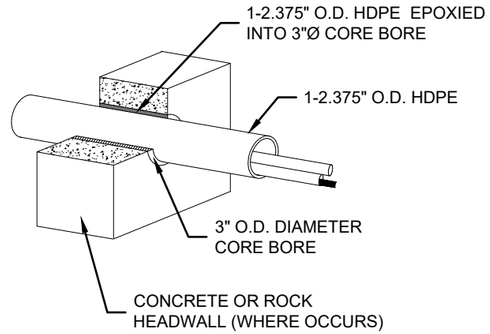
TYPICAL DETAIL "A"
TRENCH & PLACE CONDUIT



TYPICAL DETAIL "B"
CROSS SECTION OF PROPOSED HDPE

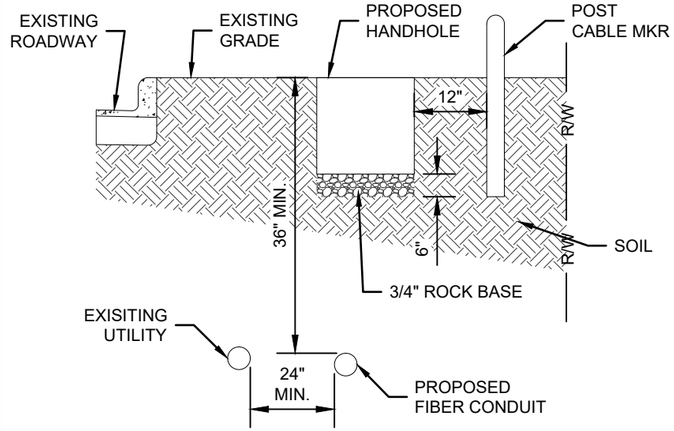


TYPICAL DETAIL "C"
DIRECTIONAL BORE CROSS SECTION FOR CONDUIT

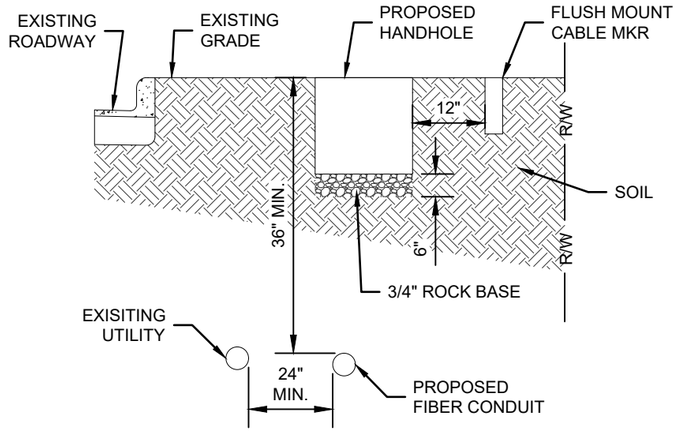


NOTE:
EPOXY GROUT IS USED AT BOTH ENDS OF CORE BORE TO SEAL GAP BETWEEN 2.375" CONDUIT AND PVC SLEEVE.

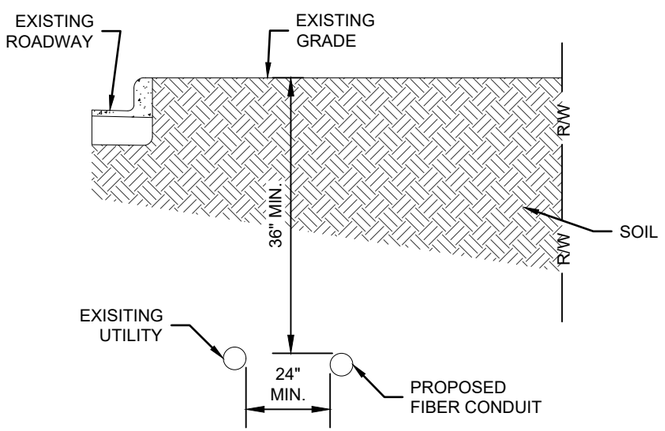
TYPICAL DETAIL "D"
3" CORE BORE



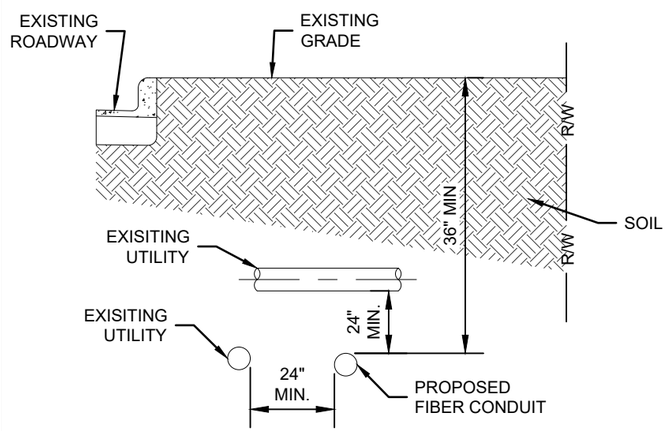
TYPICAL DETAIL "E"
HH WITH ABOVE GROUND MARKER



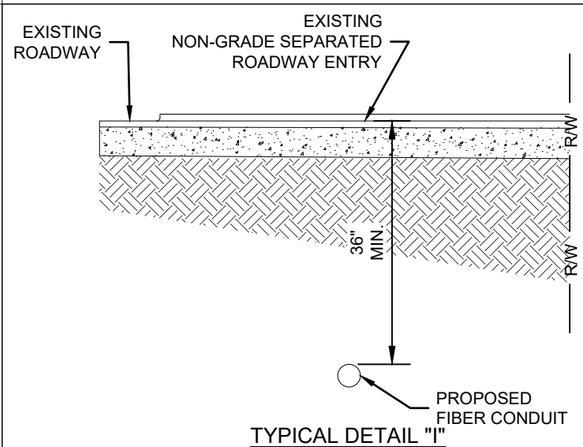
TYPICAL DETAIL "F"
HH WITH FLUSH MOUNT MARKER



TYPICAL DETAIL "G"
PARALLEL TO OTHER UTILITIES



TYPICAL DETAIL "H"
CROSSING OTHER UTILITIES



TYPICAL DETAIL "I"
CROSSING NON-GRADE SEPARATED ROADWAY ENTRY

3/10/2021 - 2:33 PM

REVISIONS

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TYPICAL DETAIL DRAWINGS

TY.01

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

Charles D Sparks
REGISTERED CIVIL ENGINEER

August 1, 2022
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Charles D. Sparks — No. C47029 — Exp. 3-31-24 — CIVIL — STATE OF CALIFORNIA

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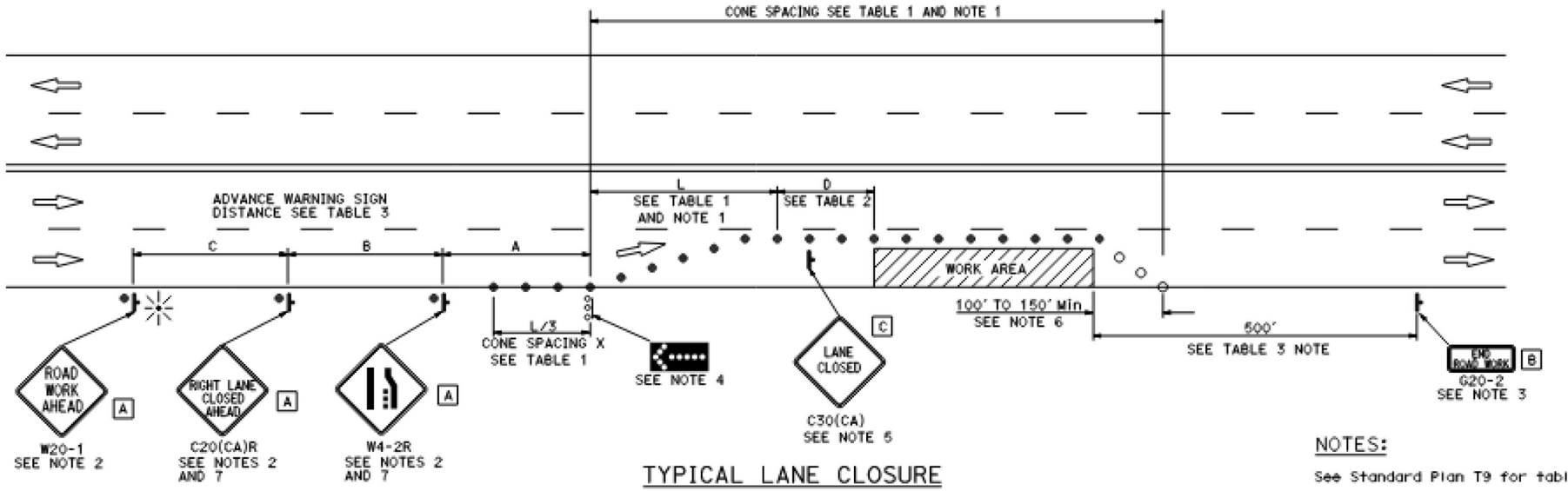

TYPICAL LANE CLOSURE

NOTES:

See Standard Plan T9 for tables.

Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

Provide at least one person to continuously maintain traffic control devices for lane closures.

LEGEND

- ● TRAFFIC CONE
- ○ TRAFFIC CONE (OPTIONAL TAPER)
- TEMPORARY TRAFFIC CONTROL SIGN
- FLASHING ARROW SIGN (FAS)
- FAS SUPPORT OR TRAILER
- PORTABLE FLASHING BEACON

SIGN PANEL SIZE (Min)

- [A] 48" x 48"
- [B] 36" x 18"
- [C] 30" x 30"

NOTES:

1. Portable delineators placed at one-half the spacing indicated for traffic cones may be used instead of cones for daytime closures only.
2. Each advance warning sign shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
3. A G20-2 "END ROAD WORK" sign shall be placed at the end of the lane closure unless the end of work area is obvious or ends within the larger project's limits.
4. A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at the top of crest vertical curve or on a horizontal curve.
5. Place C30(CA) "LANE CLOSED" sign at 500' to 1000' intervals throughout extended work area.
6. Length may be reduced by the Engineer to address site conditions.
7. Median lane closures shall conform to the details shown except that C20(CA)L and W4-2L signs shall be used.
8. For approach speeds over 50 MPH, use the "Traffic Control System for Lane Closure on Freeways and Expressways" plan for lane closure details and requirements.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON MULTILANE CONVENTIONAL HIGHWAYS

NO SCALE

T11

2022 STANDARD PLAN T11

310

6-24-22

PROJECT ARCATA TO TRINIDAD
HUMBOLDT COUNTY

ISSUE FOR PERMIT: 5/28/2024

PERMIT NAME:	VERO_HUMBOLDT_03
JURISDICTION:	HUMBOLDT COUNTY
COUNTY:	HUMBOLDT
BORE FOOTAGE:	1257'
STRUCTURES:	2 HANDHOLES

DRAWING INDEX

APPLICATION PREPARED BY:

CHRIS SCHEPMANN
PROJECT MANAGER 2
7101 COLLEGE BLVD. SUITE 400
OVERLAND PARK, KS 66210

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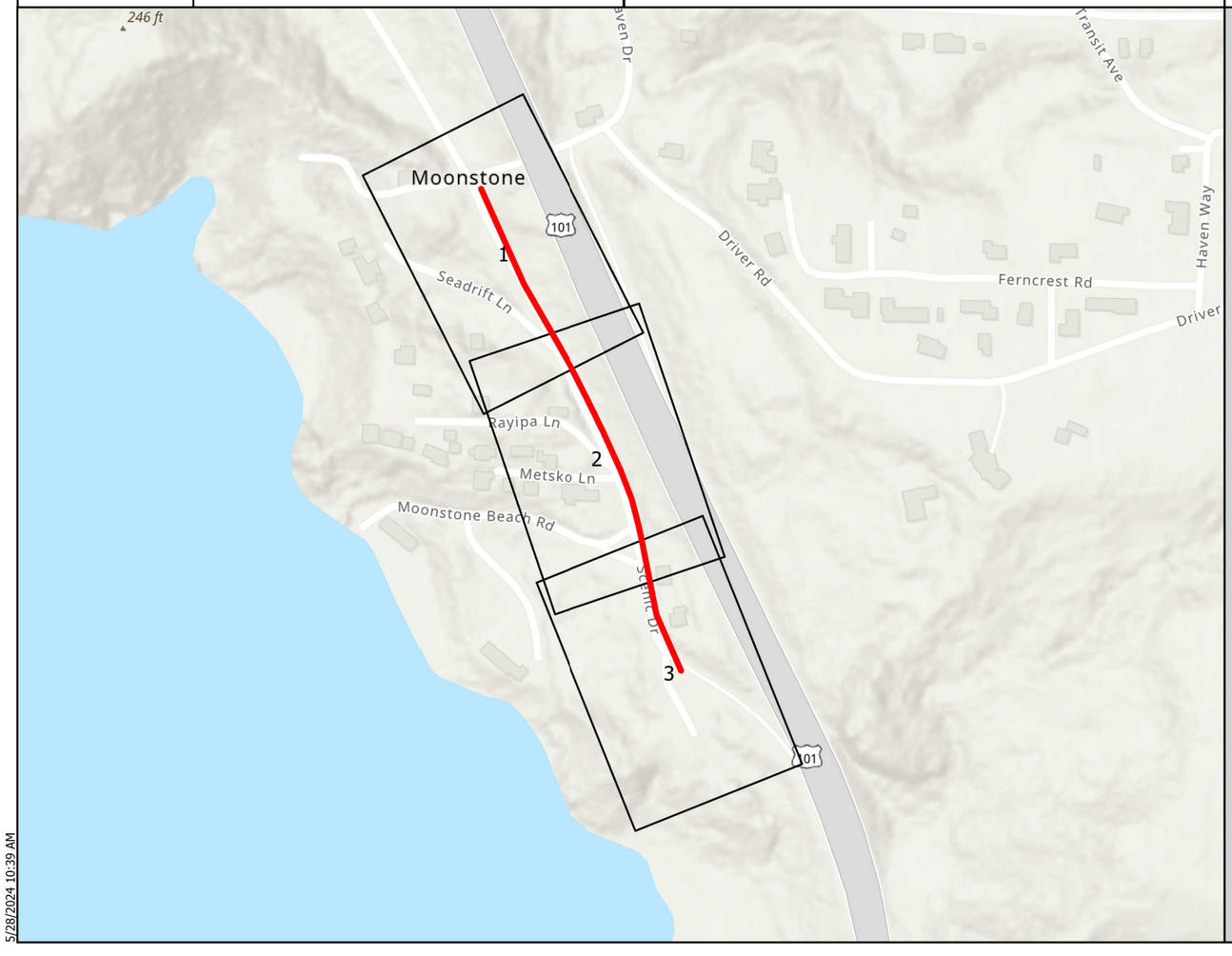

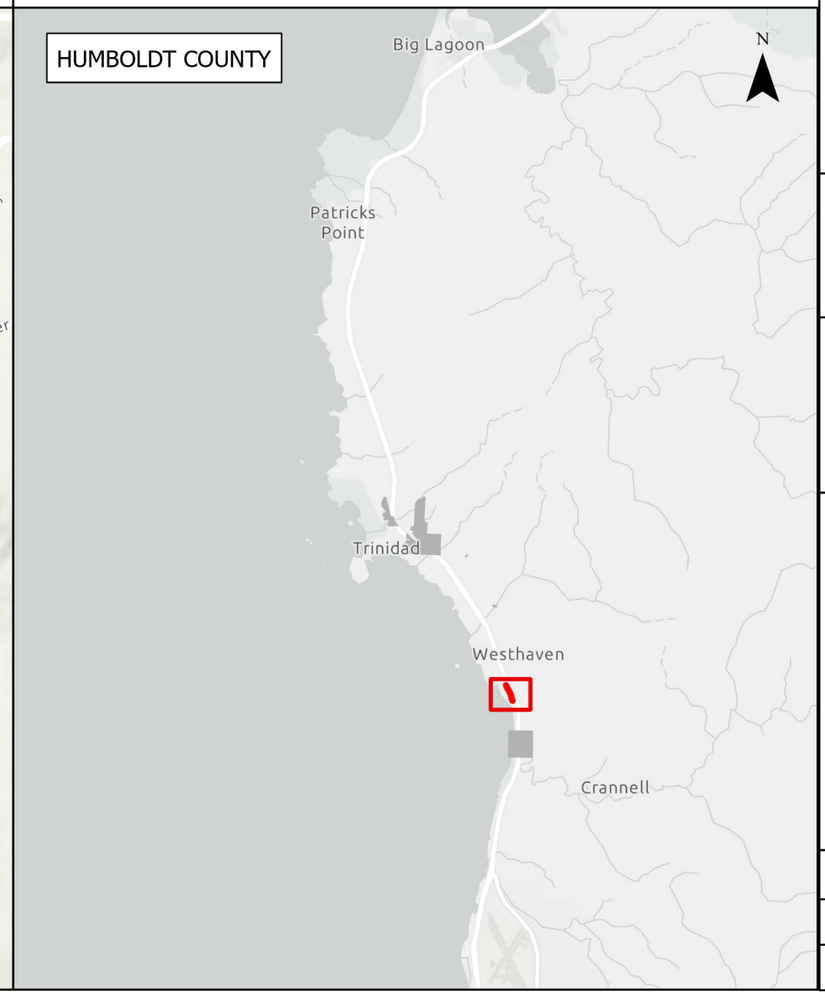

5/28/2024 10:39 AM

PERMIT ISSUE: 5/28/2024

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HUMBOLDT COUNTY

TRINIDAD TO ARCATA

T.01

SYMBOLOGY:

EXISTING:

- Gas Manhole
- Gas Meter
- Gas Valve
- Electrical Manhole
- Electrical Meter
- Electrical Pedestal
- Electrical Vault
- Electrical Cabinet
- Water Hydrant
- Water Manhole
- Water Meter
- Water Valve
- Water Vault
- Sanitary Sewer Manhole
- Sanitary Sewer Other
- Telecom Manhole
- Telecom Pedestal
- Telecom Vault
- Telecom Cabinet
- Traffic Control Light
- Traffic Control Manhole
- Traffic Control Other
- Traffic Control Vault
- Traffic Control Cabinet
- Storm Sewer Grate
- Storm Sewer Manhole
- Storm Sewer Drain
- Light Pole
- Utility Pole w/Light
- Utility Pole
- Electric Line
- Gas Line
- Sanitary Sewer Line
- Storm Sewer Line
- Telecom Line
- Traffic Line
- Water Line
- R/W Right of way
- ESMT Easement

- EOP&CURB Curb and Gutter
- Dirt
- DRIVE Driveway
- EOP Edge of Pavement
- Gravel
- S/W Sidewalk
- Centerline
- Fence
- Tree
- Forest
- Contour Lines

PROPOSED:

- HH Proposed Vault
- Bore Pit
- Match Line
- Proposed Conduit

ABBREVIATIONS:

CL	Centerline	MMV	Meet Me Vault
CMP	Corrugated Metal Pipe	MON	Monument
CO	County	NO	Number
CONC	Concrete	PRK MTR	Parking Meter
CSG	Casing	P/L	Property Line
CT	Count	PED	Pedestal
CTV PED	Cable TV Pedestal	PED-X SIG	Pedestrian Crossing Signal
CULV	Culvert	PI	Point of Inflection
DBH	Diameter at Breast Height	PKG	Package
		PVC	Polyvinyl Chloride
D.D.	Down Drain	RCB	Reinforced Concrete Box
DEPT	Department	RCP	Reinforced Concrete Pipe
DIA	Diameter	RD MEM	Roadside Memorial
DIR	Directional	REQD	Required
DIST	District	RGS	Rigid Galvanized Steel
DOC	Depth of Cover	ROW	Right of Way
DOT	Department of Transportation	RR	Railroad
		RR HUT	Railroad Signal Hut
DWG	Drawing	SCB	Sprinkler Control Box
DWY	Driveway	SD	Storm Drain/Curb Inlet
E MH	Electric Manhole	SDMH	Storm Water Manhole
E MKR	Electric Line Marker	SEC.	Section
E PED	Electric Pedestal	SF	Silt Fence
E VLT	Electic Vault	SMH	Sanitary Sewer Manhole
EM	Electric Meter	SP	Splice
ENC	Encased	SS CO	Sanitary Sewer Clean Out
ENG	Engineering	SS LIFT	Sanitary Sewer Lift Station
EOP	Edge of Pavement	STA.	Station
EPB	Electric Pull Box	STD	Standard
EXIST	Existing	STR	Section Township Range
FH	Fire Hydrant	SWPPP	Storm Water Pollution Prevention Plan
FO	Fiber Optic		
FO MH	Fiber Optic Manhole	SWT MCH	Switch Machine
FO MKR	Fiber Optic Line Marker	T HH	Telecom Handhole
FO VLT	Fiber Optic Vault	T MH	Telecom Manhole
FOC	Fiber Optic Cable	T MKR	Telecom Line Marker
FS	Filter Sock	T PED	Telecom Pedestal
G MH	Gas Manhole	T VLT	Telecom Access Vault
G MKR	Gas Line Marker	T.P.	Trench Plug
G SD	Grated Storm Drain	TCB	Traffic Control Box
GALV	Galvanized	TCE	Temporary Construction Easement
GEO SRV MKR	Geodetic Survey Marker	TCV	Traffic Control Vault
GM	Gas Meter	TRF MH	Traffic Control Manhole
GV	Gas Valve	TSP	Traffic Signal Light
GWMW	Groundwater Monitoring Well	TYP	Typical
		UG	Underground
HDPE	High Density Polyethylene	UNK MH	Unknown Manhole
		UNK PED	Unknown Pedestal
HH	Handhole	UNK UTL MKR	Unknown Utility Marker
HWY	Highway	UNK VLT	Unknown Vault
IB	Inlet Barrier	USACE	United States Army Corps Of Engineers
ILA	In Line Amplifier		
INC	Incorporated	UTL LP	Utility Light Pole
INT	Intermediate	UTL P	Utility Pole
L/A ROW	Limited Access Right of Way	VDOT	Virginia Department of Transportation
LF	Linear Feet	VLT	Vault
LOC MKR	Locating Marker	VP	Gas Vent Pipe
LP	Light Pole	W MH	Water Manhole
MAX	Maximum	W MKR	Water Line Marker
MB	Mailbox	W SPG	Water Spigot
MH	Manhole	W VLT	Water Vault
MIN	Minimum	WM	Water Meter
MIT	Mitigation	WV	Water Valve
MKR	Marker	X-GATE	Crossing Gate
ML	Maintenance Limits	YRD L	Yard Light

5/22/2024 6:00 PM

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DATE	REV	DESCRIPTION

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California 811

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HUMBOLDT COUNTY

ARCATA TO TRINIDAD

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PROJECT CONTACTS

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CONSTRUCTION NOTES

UNDERGOUND CONSTRUCTION

CONDUIT INFRASTRUCTURE CONSTRUCTION

1. RIGHT-OF-WAY PROTECTION AND RESTORATION

1. Contractor shall comply with requirements stipulated by relevant authorities having jurisdiction (City, County, State and Federal), and shall minimize damage to rights of way and ensure all clean up and restoration meets or exceeds such jurisdiction specifications, with all debris and waste removed at Contractor's cost/expense
2. Contractor shall comply with all Environmental Protection agency requirements (State and Federal) and ensure compliance on all projects.

2. MATERIALS

1. CONDUIT
1. HDPE is the default choice for underground conduit, minimum wall thickness SDR-11. The properties and dimensions shall be in accordance with ASTM F2160 standard specification for Solid Wall High Density Polyethylene (HDPE) Conduit unless otherwise approved by Company Project Manager permitting authority. Duct size and number of ducts will be specified on the Engineering Workprints, purchase order or scope of work issued to Contractor. All materials supplied and used by contractors must approved by Company Project Manager.
2. Conduit shall be installed by pulling the duct directly from reels on reel trailers.
• Note: This will ensure as little waste as possible of the Duct, as well as less stress on duct and safer for crew members.
3. Crews will NOT pull duct off reels prior to installing unless there is absolutely no physical way to get a reel trailer set up safely.
• Note: having to shut down a lane to accommodate the reel trailer for pulling duct or any other, other than normal solution, does not meet the criteria of "no physical way"
• Once Duct is in the HH, MH, and or site, etc., they will all be sealed by using the proper duct plugs.
• Photos with Solocator will be taken per written standard. See OSP.1012 Standards Bulletin for further detail.

3. MANHOLES

Manholes provided by contractors must meet Bellcore standards and specifications and be approved by Company Management. All manholes will conform to AASHTO (American Association of State Highway and Transportation Officials) H-20 loading, traffic rated standards.
GPS will be taken at every Manhole placed. Photos with Solocator will be taken at every placed manhole per written
standard. See OSP.1012 Standards Bulletin for further detail. And as required by SOW.

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HUMBOLDT COUNTY

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2/27/2024 11:05 AM

CONSTRUCTION NOTES

HANDHOLES

Handhole type and manufacture will be specified by COMPANY in the scope of work and the Contractor will be required to purchase and use those for the specific build
Handholes for slack use will be a minimum of 36 inches in depth, 48 inches in length and 30 inches in width Handholes used for splice locations will be a minimum of 48 inches in
depth, 60 inches in length and 36 inches in width
These and any Handhole used on a COMPANY construction project shall be, at a minimum, A Tier 22 with a load rating of 22,000 lbs. minimum If for any reason the contractor is required to acquire COMPANY Handholes, they will meet the above requirements as well as, meeting the Bellcore standards and specifications and be approved by Company Management. All handholes will conform to AASHTO (American Association of State Highway and Transportation Officials) and if required to be in the street or a location where large weight vehicles may sit on and not just cross over them, then they must also be upgraded to a H-20 load rating, traffic rated standards. GPS points will be taken at every Handhole placed Photos with Solocator will be taken at every placed handhole per written standard. See OSP.1012 Standards Bulletin for further detail. And as required by
SOW

SPECIAL DESIGN AND MATERIAL CONSIDERATIONS

1.The contractor shall be responsible for the physical location of ALL foreign utilities within the right-of-way before digging in the vicinity in accordance with local Utility Protection Standards. Any damages to other utilities will be the responsibility of the contractor. Contractor will also be responsible for red-lining all utilities on as-builts
2.Steel pipe shall be considered where obstructions such as buried utilities or other facilities run parallel to the proposed running line and have less than 2 feet of separation.
3.GSP, Steel or PVC Schedule 80 conduit will be proposed for housing HDPE or innerduct at Railroad crossings, river crossings, culvert crossing and other obstacles of the same type crossings.
4.If these methods are used the conduit should extend a minimum of five feet past the edge of the culvert or headwall.
5.All sweeps and field bends and or turns tighter than a 36” radius will require factory fittings at all times

METHODS OF PLACEMENT

PLOWING
1. All OSHA and other governing agencies rules and regulations will apply and be followed
2. Plowing can be considered as an alternative construction method when conditions and governing authorities permit.
3.When plowing is utilized as a construction method, the equipment used by the contractor shall be such as to cause the minimum displacement of the soil. Damage to banks, ditches, driveways, and roads
4.GPS points will be taken at the start and stop of the Plow, every 150 feet along a straight and continuous plow line, and at any and all changes in direction to include drift up or down or side to side in the ROW to ensure running line accuracy.
5. Photos with Solocator will be taken as required in the scope or as needed

TRENCHING/OPEN CUTS

1. All OSHA and other governing agencies rules and regulations will apply and be followed
2. When trenching and open-cutting is an option or requirement, the contractor shall excavate by machine trench, backhoe, hand, etc.
3. The network trench shall be as straight as practicable.
1. The bottom of the trench shall be smooth and free from any sharp edges.
2. The trench shall be kept clear of debris and loose rock.
3. All changes in trench grade shall be gradual
a. Note: The vertical change in grade should not exceed (1.5') within (6') in length.
1. Prior to duct placement in the trench, the duct shall be bundled, tied and or bound by an approved method to eliminate the possibility of the duct twisting and tension shall be applied to the duct to eliminate waving in the trench.
2. Duct shall be placed in the center of the excavation and as straight as practicable. Excessive waving of the duct within the trench will not be allowed.
3. All open trenches and other excavations shall be backfilled at the end of each working day. Any open trench or excavation not backfilled may be covered as approved by the governing authority's rules and regulation
4. GPS points will be taken at the start and stop, every 25 feet along a straight and continuous trench line, and at any and all changes in direction to include drift up or down or side to side in the ROW to ensure running line accuracy.
5. Photos with Solocator will be taken as required in the scope or as needed

BORING

1. All OSHA and other governing agencies rules and regulations will apply and be followed
2. When Boring is allowed the contractor shall use Directional Boring as the preferred method.
3. The contractor will be responsible for all unsuccessful bore attempts. All unsuccessful bore attempts will be filled with grout or as required by the governing authority.
4. The contractor shall not drain any excess material into storm, sanitary systems, ditches or anywhere on the Right of Way.
5. When crossing all deadly utilities they must be daylighted by potholing to verify there is sufficient separation from the Company duct, or if paralleling within 10’ horizontally.
1. Note: separation is 24” without written authorization from COMPANY or the governing agency or agencies.
6. All verifications will be physical verification on site of the actual utility
7. Bore logs will be kept and document the start, the stop and every 10 feet in between.
8. The contractor shall submit all boring logs and profiles to Company
9. In general the vertical change in grade shall not exceed one and a half feet (1.5') in six feet (6') in length.
10. GPS points will be taken at the start and stop of every bore, every change of stem (i.e., every 10 feet when using 10-foot stems, 15 feet when using 15-foot stems etc.) along a straight and continuous bore line, and at any and all changes
in direction to include drift up or down or side to side in the ROW to ensure running line accuracy and depth accuracy.
11. Photos with Solocator will be taken as required in the scope or as needed

GENERAL RESTORATION

1. All OSHA and other governing agencies rules and regulations will apply and be followed
1. All rock and debris brought to the surface and not used during backfilling operations shall be removed and disposed of in an appropriate manner.
2. Improved landscape, lawns, shrubs, and hedges removed or damaged shall be replaced in like kind.
4. All areas disturbed by the construction activities in public rights-of-way shall be restored and seeded per the specifications of the governing authority.
5. The contractor shall promptly repair or replace any other property damaged during construction.
6. Contractor shall remove all duct installation debris including construction spoils and remaining installation materials from any public or private properties.
a. NOTE: Such material to be removed would also include litter generated by the construction crews.
7. No debris or litter should ever be disposed of in a trench or other telecommunication excavation. The contractor is responsible for the proper disposal of all soil, concrete, asphalt or other debris.
8. No asphalt shall be permitted in the backfill.
9. Photos with Solocator will be taken before, during and after restoration and as needed

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HUMBOLDT COUNTY

TRINIDAD TO ARCATA

GN.02

2/27/2024 11:00 AM

CONSTRUCTION NOTES

PAVEMENT RESTORATION

1. All OSHA and other governing agencies rules and regulations will apply and be followed
2. It is recommended that Cobblestone or old brick in historic areas, be numbered, photographed, removed, and then stored for replacement. Care must be taken to restore historic areas to their original condition and "look."
3. Pavement, driveways, and sidewalks shall be restored to their original or better condition within five (5) business days or as soon as practicable, following duct placing operations.
4. The backfill within the roadway shall be placed and compacted in not more than six-inch (6") lifts from the bottom to the finished grade.
5. Photos with Solocator will be taken before, during and after restoration and as needed

BACKFILL

1. The trench shall be backfilled and compacted to the satisfaction of Company and local authorities, promptly behind duct placement.
2. The backfill shall be the trench excavated materials, provided the excavated materials are free from debris, rocks measuring less than two inches (2") in diameter and other unsuitable materials.
3. Backfill within the roadway shall be placed and compacted per the governing authority specification or to ninety percent (90%) modified proctor in non-traveled areas and ninety five percent (95%) modified proctor in traveled areas whichever is greater.
4. Company 's engineer has the right to test the soil compaction randomly. If soils do not meet the compaction requirements, the contractor will be directed to remove fill until proper compaction is found. The contractor will not have any claim to additional time or additional costs.
5. If Company 's engineer tests 5 locations that fail compaction, then Company 's engineer can require all backfill lifts to be tested. The contractor will be required to pay for all the testing including, but not limited to, labor, equipment and lab tests.

DEPTH OF PLACEMENT

1. Except where specified in the drawings, approved by Company , or permit specifications dictate a different depth, the top duct shall be placed a minimum of Forty-two inches (≥42") below grade or as required by authority having jurisdiction with a minimum of twelve inches (12") of separation from foreign object or as required by object's owner which is greater.
2. Where the network crosses gullies, ditches, streams, rivers, and washes, the conduit will be placed at a minimum depth of forty-eight inches (48") below the bottom of the waterway unless the controlling authority requires additional depth in which case the greatest depth will be maintained.
3. Where the network route crosses railroads, the network shall be placed at a minimum depth of sixty inches (60") below the base of rail or sixty inches (60") below the paralleling drainage ditches, or at greater depths as required by permitting authorities which is greater.
4. Where the network crosses existing subsurface pipes, cables, or other structures, the network will be placed to maintain a minimum of twelve inches (12") separation (preferred to be 24" whenever possible) from the foreign object or a minimum separation as required by the object's owner, whichever is greater.
5. For special cases when minimum cover cannot be obtained due to the location of subsurface obstructions and/or other utilities, these special considerations will be acceptable, but only with Company Management approval:
a. BSP/GSP or Concrete Encased HDPE will be used with cover between 12" to 35", with Middle Mile Management approval.

COUPLER INSTALLATION

1. Barbed Couplers will be utilized and installed per manufacturer's specification, buried flush with the path/bore/trench of the conduit.
2. Barbed Couplers are the only authorized couplers for any and all COMPANY HDPE duct
3. To prevent the bundling of Barbed couplers at one location or hole and to meet requirements for depth of cover; the couplers must be staggered and sequenced every six inches between multiple conduits and should not overlap or touch another coupler.
4. If micro duct is used (i.e., 7way, 6way, 4way etc.,) a rubber boot will be applied over the micro duct couplers and then heat shrunk for added strength both vertically and horizontally, as well as,sealing the staggered couplers from foreign substances
5. All locations of barbed couplers should be noted and correspond to a depth and station number on the as-built drawings.
6. All Couplers at all Coupler locations will be photographed with Solocator and provided as a deliverable to Company , to include but not limited to the GPS location, station number and a number of all couplers, barbed and or micro coupler, at each location. And as required by SOW.
7. See OSP.1012 Standards Bulletin for further detail.

CABLE MARKER SIGNS

Marker Poles
1. Marker Poles will be set at each Splice, Handhole and Manhole location.
a) The cable marker posts shall be placed whenever possible within a one-
foot offset from the back of the Handhole/Manhole, centered on the back side of the Handhole/Manhole between it and the outside ROW line
b) if due to permitting agency rules, Marker Poles are not allowed then
alternative means will be used to mark these assets.
c) Any deviation from Marker Poles to other devices will require COMPANY written approval.
2. Marker poles will be set at all crossings (i.e., road, river, rail, etc.)
3. Marker poles will be set at all changes of direction in the running line.
4. Marker Poles will be set in such a way so there is never more than 500lineal feet between any two Marker Poles.
5. Marker Poles will be set in such a way that no matter where you stand onthe ROW, you will be able to see a Marker Pole
6. GPS points will be taken at every placed Marker Pole
7. Photos with Solocator will be taken at every placed marker Pole And as required by SOW.

DEPTH OF MARKER SIGN

1. Contractor shall bury the marker post as per Manufacturer's specification, at twenty-four inches (24") below grade and ensure the cross member has been added to ensure stability and the Marker Pole can't be lifted.
2. The cable marker posts shall be placed whenever possible directly over the the network running line or as close as the permitting authority allows.
3. Any offset shall be permanently noted on the space provided by the cable marker sign.
4. All Marker Posts are to be GPS'd

TRACER WIRE

1. When a trace wire is required, a minimum of a 10-gauge poly coated solid copper tracer wire will be placed with every linear foot of duct placed,regardless of the type of construction
2. If armored cable is used, then the locate wire from the enclosure to the Locate test Station pole will be poly coated solid # 6.
3. Locate marker posts, flush mount finks, manholes, handholes, and all other tracer access points will be connected to the tracer/ground wire for locating buried facilities.
4. Tracer wire connectivity tests must be conducted by the contractor to ensure the entire plant is locatable.
5. Damaged tracer/ground wires will be repaired immediately with minimal connectors.
6. COTT or other Company acceptable test stations will be placed at each manhole/handhole, using the ground tree model to ground tracer wire at splice locations. see OSP.1003 – Splice Point Grounding for Locate Test Point Stations in Appendix A

PROOFING DUCT

1. All conduits, regardless of size will be verified for ovality, turning angle, and damage by proofing the duct per manufacturer specification and or with an 85% space capacity mandrel whichever is greater.
2. The mandrel will be made of metal and not to exceed the length of 3 times the diameter of the duct.
3. Proofing of the duct shall be completed with air pressure of at least 50 PSI and no more than 150 PSI or the max duct PSI whichever is less.
4. All proofing results must be witnessed and documented by an appropriate Company representative.
5. Damaged duct should be repaired immediately with minimal couplers.

SEALING DUCTS

All ducts must be properly sealed per manufacturer specifications with Duct plugs or an equivalent approved by the Company Project Manager. Ducts or duct plugs should be labeled with the direction of the conduit path.
All ducts with FOC present must be properly sealed with a half Moon or equivalent plug approved by the Company Project Manager.

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TRINIDAD TO ARCATA

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CONSTRUCTION NOTES

MANHOLE AND HANDHOLE CONSTRUCTION

1. Handholes and manholes shall be installed by the contractor as designated in the construction drawings. Installation shall include all grouting, installation of extension ladders, required extension rings, and all related work for the complete installation of the structure. The design loading for all man-holes and handholes shall be capable of supporting H-20 loading,
per the American Association of State Highway and Transportation Officials (AASHTO.)
2. All Intermediate Slack Vault (IEV) Hand holes will be sized to a minimum of 30" in width x 48" in length x 36" in depth and open bottom
3. All Network Splice Vault (NSV) HHs will be sized to a minimum of 36" in width x 60" in length x 48" in depth and open bottom.
4. The handholes shall be set on a base minimum thickness of six inches (6") or as provided in manufacturer's specifications consisting of clean gravel or crushed stone with a minimum diameter of three-quarter inch (3/4") and a diameter maximum one and one-half inch (1.5").
5. The ducts shall enter and leave hand holes exactly opposite each other within the handhole to facilitate the cable coils and/or splice closures. When ever possible the duct will enter from underneath the Handhole, not the sides. Each duct length inside handholes and manholes shall be a minimum length of six inches (6") from the inside wall of the HH, but no more than twelve inches (12").
6. Micro duct should be a minimum length of ten inches (10") from the inside wall of the HH, but no more than sixteen inches (16") and then four inches (4") of the outer sheath should be removed to allow the unfettered access to the individual micro ducts.
7. At all splice locations the contractor shall install a 3-rod ground tree for fiber optic cable grounding in accordance with the detailed drawings provided in
Bulletin OSP.1003 – Splice Point Grounding for Locate Test Point Stations.
• Ground Trees will be GPS'd
7. In a Metro area, Handholes shall be set flush to grade or to the specifications of the governing authority or in accordance with the detailed drawings.
8. When outside a metro area, the handhole is to be buried and it should be set with a minimum of 18 inches (18") and or a maximum of twenty-four (24") cover.
9. Manholes shall be installed in the same manner as handholes with the following exceptions:
• The contractor shall not use material less than five thousand (5,000) pounds per square inch (PSI) in density to shim frames and covers.
• Frames and covers shall be installed to match existing grade and shall be
shimmed with either steel or concrete spacers.
• All manhole penetrations shall be sealed with a pre-approved non-shrink grout.
• All conduits, ducts, or casings that enter the manhole wall shall be back filled to 95% compaction by using sand and water or slurry to insure minimal settling of the pipe. This action will help eliminate damaged conduits.
11. Innerduct shall have a gradual sweep into the handholes and manholes, if the depth of innerduct bury exceeds forty-eight inches (48"). The handholes and manholes shall not be installed on steep banks or slopes where the cover cannot be leveled within a tolerance of one-inch (1") of drop to twelve
inches (12") of grade.
12. All innerduct or conduit entering the manhole shall be flush and horizontal to the hole of penetration on the manhole. To prevent settlement and conduit damage near the entry of the manholes, the soil or bottom of the trench will meet 95% compactions by the use of various backfill materials. The suggested method is sand and water or slurry.
13. Upon completion of the innerduct placement in the handhole and manholes, the innerduct shall rest freely without tension. Innerduct on each side shall be plugged and sealed as previously noted.
14. All HH's and MH's, 3 rod ground trees, duct entrances and anything else called out in 4.9 shall be photographed with Solocator and provided as a deliverable to Company . to include but not limited to the GPS location, station number. See OSP.1012 - QA Photo App Standard Bulletin.

SPECIAL CONSTRUCTION CONSIDERATIONS

RAILROAD CROSSINGS

1. All work shall be performed in accordance with Railroad authority and other permitting agencies.

STREAM AND CANAL CROSSINGS

1. Contractor shall comply with all Federal, State, county and local laws, rules, regulations and Company obtained permits when crossing lakes, canals, streams, or river crossings.
2. Restoration and erosion control shall be performed as required by the agency having jurisdiction and as approved by Company .

GAS LINE CROSSINGS

1. Extra care must be taken when working around gas lines.
2. All deadly utilities will be exposed to verify 24" separation from Middle Mile Management duct package when crossing
3. All placements are subject to additional requirements in accordance with standards and specifications of the gas line owner and permitting authorities.

ROCK CONSIDERATIONS

NO ROCK CLAUSE:

• NO ROCK CLAUSE Contracts and RFPs must clearly define whether rock clauses are applicable to a specific project or not.
• For contracts that have no allowances for rock considerations, the contractor is responsible and fully accountable for all construction regardless of the type and amount of rock encountered during construction.

DRAINAGE CULVERTS

1. If underground drainage tile is encountered as the network is installed, the network shall be installed as per drainage district or other governing authority specifications.
2. The contractor consistent with the pre-construction conditions and materials will repair all damaged drainage tiles. In case of a dispute regarding the proper repair of damaged tile lines, the repair specifications of the county Soil and Water Conservation District will be followed.
3. The contractor will be responsible for repair of tile damaged by the construction.
4. Repairs made to damaged tile line must enable the tile lines to operate as well or better after the repairs are completed as before they were damaged.
5. The contractor shall immediately repair any tile lines known to be damaged. Permanent tile line repairs will be made within two (2) days of the date the damage occurred, weather permitting.
6. Where a tile is damaged, the contractor must station the location and indicate the location on the red line as-built
7. Prior to back filling, a Company representative and the governing authority must approve of the final tile repair.

EXISTING UTILITIES AND SUBSURFACE OBSTRUCTIONS

1. Prior to excavation commencement, contractor shall obtain a dig ticket by calling the appropriate Utilities Protection Center number per applicable jurisdiction (state, county, city, federal).The Contractor shall obtain and maintain the Call Before you Dig Programs in all construction areas. Contractor shall also notify all existing utility owners not participating in the CBUD Programs. For Company approval and inspection, contractor shall document and maintain records that evidence the notification of all utility owners no later than seventy-two (72) hours prior to the start of construction. The records shall include date, time of day, name of individual contacted, name of companies contacted, telephone number, and confirmation number.
2. Damaged Utilities: Any utility damage will be reported to the utility owner and Company immediately. This includes any damage to Company duct or cable. Contractor will fully cooperate with Company to facilitate any repairs necessary and provide complete documentation of all activities and restoration.

FENCING

1. Safety fencing shall be erected, around the contractor's excavations and or open holes and equipment left open or out over night or weekends on the ROW or any publicly accessible place.
2. Safety fencing will consist of 6-foot T-Posts and high visibility plastic safety snow fence erected per local, state or federal rules and guidelines

DAILY CLEAN-UP

The contractor shall maintain a clean and hazard free work area including daily removal of all spills, unused or unacceptable excavation materials, and waste. The contractor should sweep all affected street work areas and side-walk areas daily in accordance with Federal, State, county, city and local laws, rules, regulations and standards.

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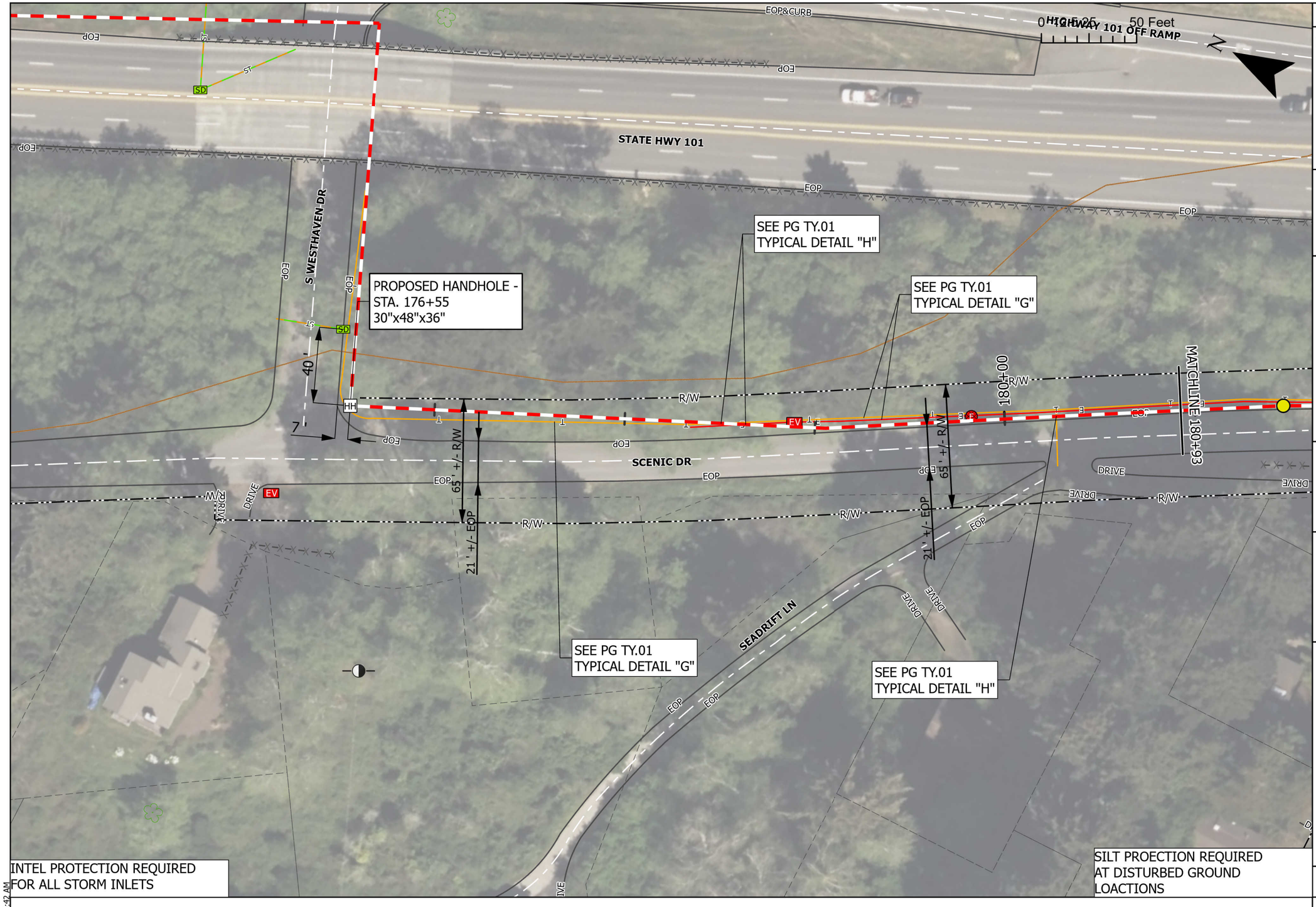
GN.04



Scale: 1 INCH: 50 FEET

PERMIT EXPORT: 5/28/2024

REVISIONS:

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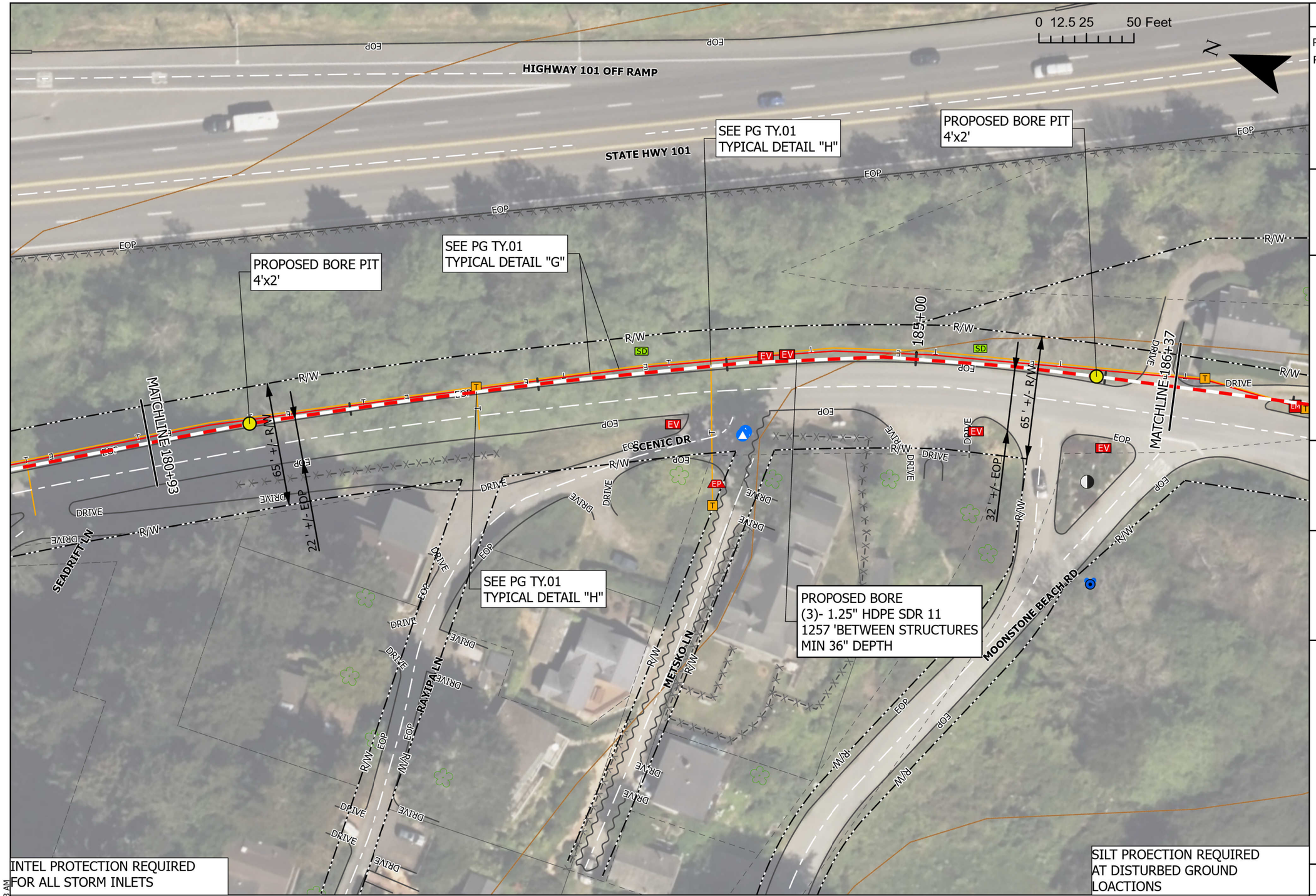
HUMBOLDT COUNTY

TRINIDAD TO ARCATA

PL.01

5/28/2024 10:42 AM



Scale: 1 INCH: 50 FEET

PERMIT EXPORT: 5/28/2024

REVISIONS:

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REGISTERED PROFESSIONAL ENGINEER
BALTHASER A. BRUNGARDT
NO. C 48159
EXP. 6/30/2024
CIVIL
STATE OF CALIFORNIA

BHC
CIVIL ENGINEERING / SURVEYING / UTILITIES
7101 COLLEGE BLVD. SUITE 400
OVERLAND PARK, KS 66210
PHONE: (913) 663-1900

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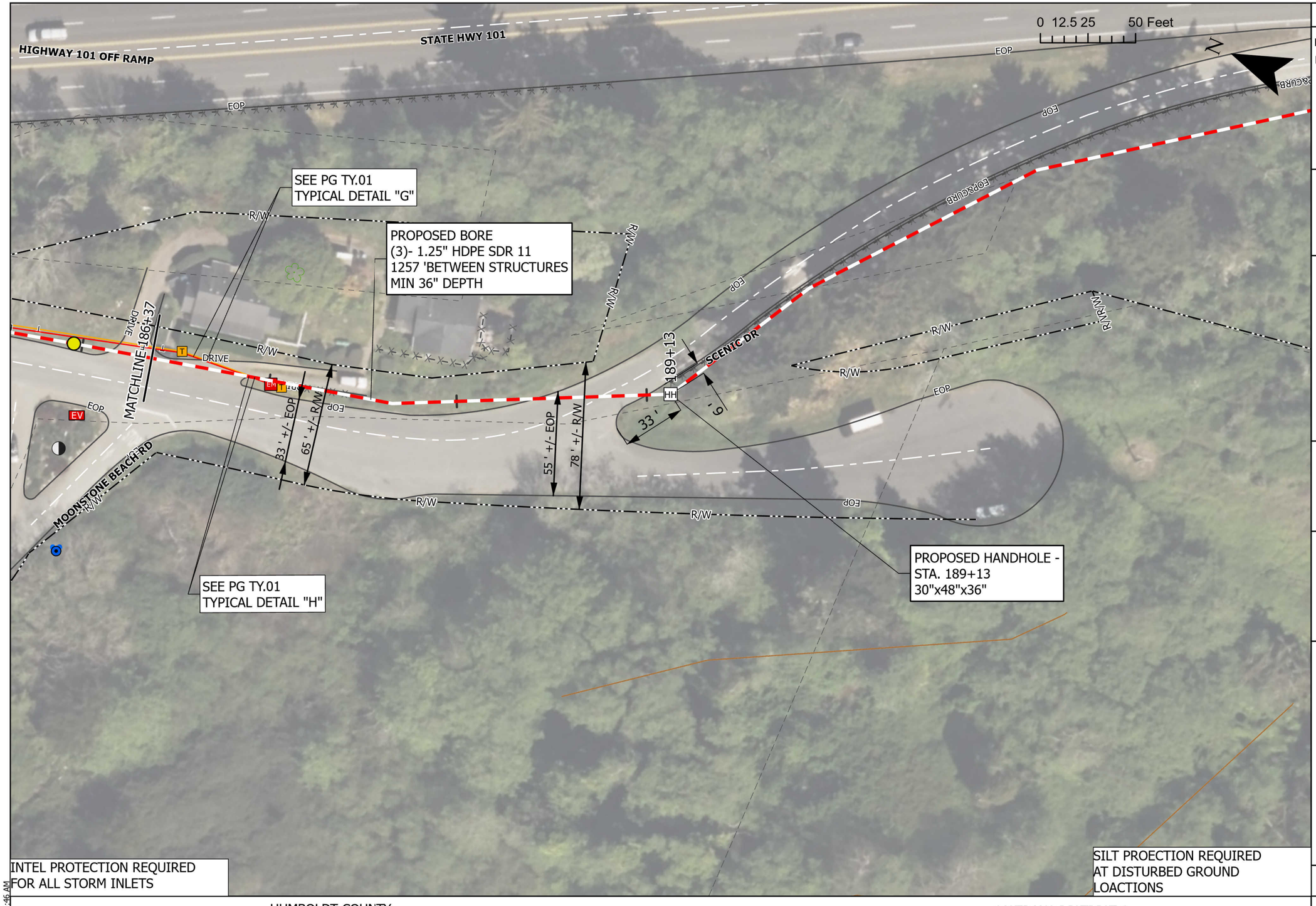
HUMBOLDT COUNTY

TRINIDAD TO ARCATA

PL.02

5/28/2024 10:43 AM



5/28/2024 10:46 AM

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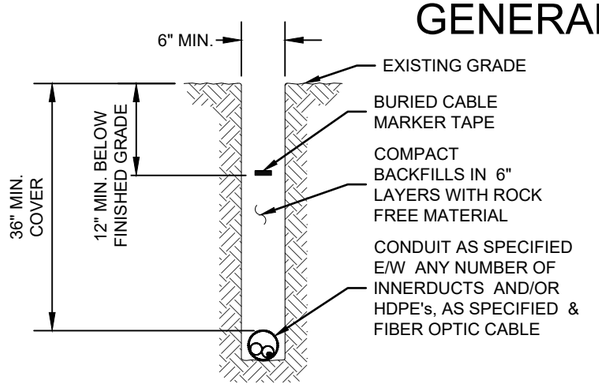
HUMBOLDT COUNTY

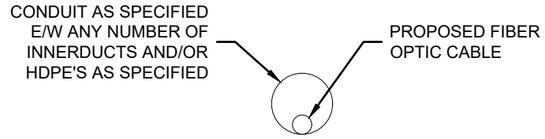
TRINIDAD TO ARCATA

PL.03

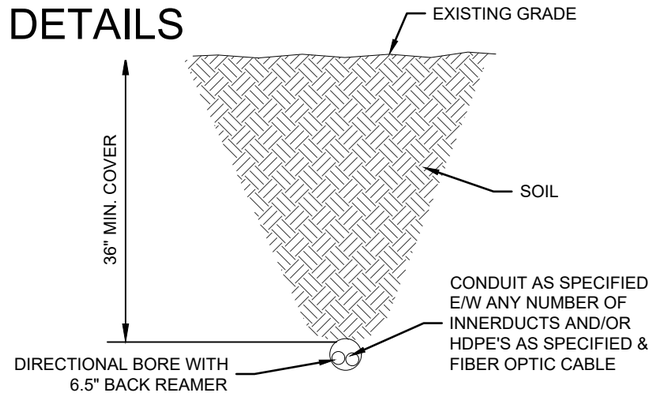
GENERAL UNDERGROUND CONSTRUCTION DETAILS



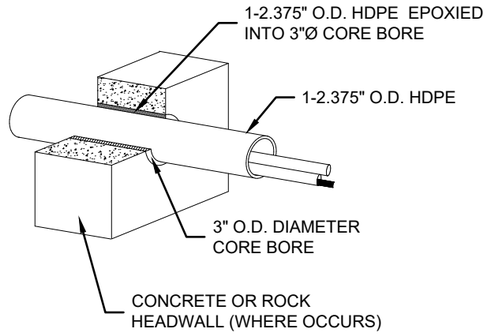
TYPICAL DETAIL "A"
TRENCH & PLACE CONDUIT



TYPICAL DETAIL "B"
CROSS SECTION OF PROPOSED HDPE

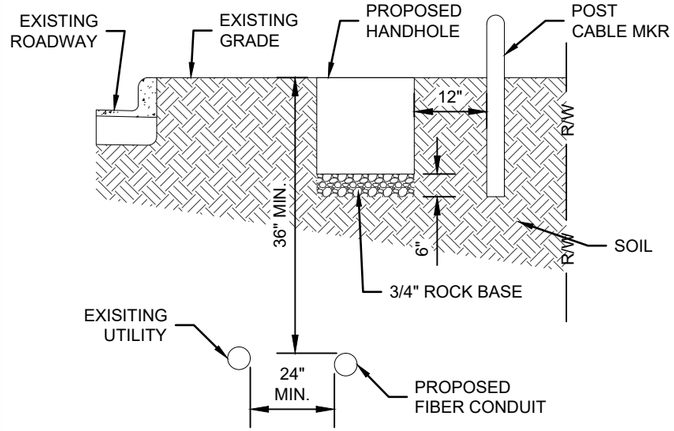


TYPICAL DETAIL "C"
DIRECTIONAL BORE CROSS SECTION FOR CONDUIT

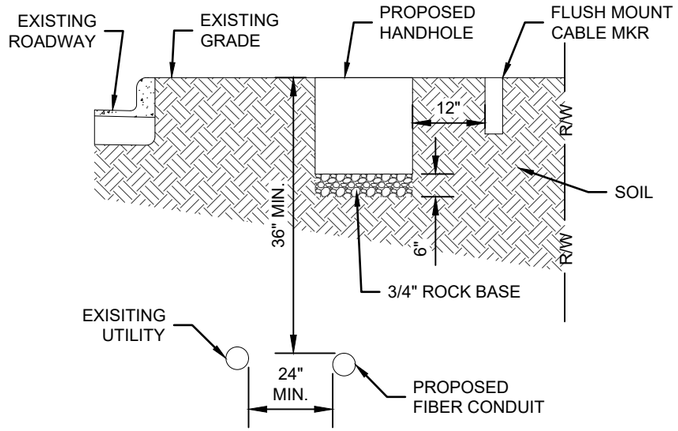


NOTE:
EPOXY GROUT IS USED AT BOTH ENDS OF CORE BORE TO SEAL GAP BETWEEN 2.375" CONDUIT AND PVC SLEEVE.

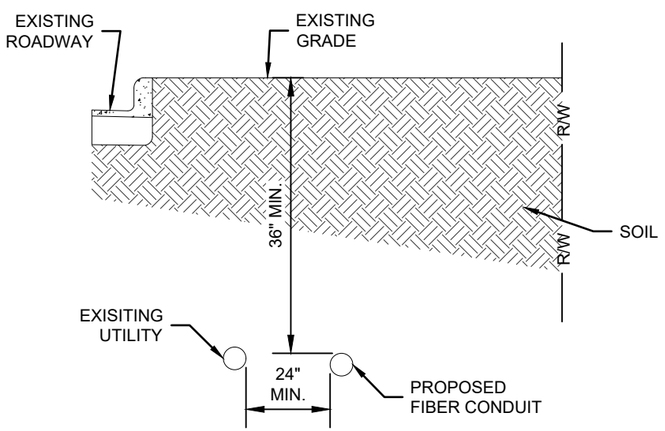
TYPICAL DETAIL "D"
3" CORE BORE



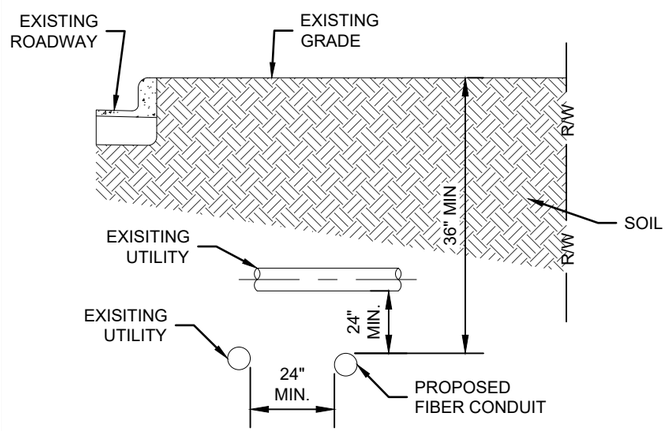
TYPICAL DETAIL "E"
HH WITH ABOVE GROUND MARKER



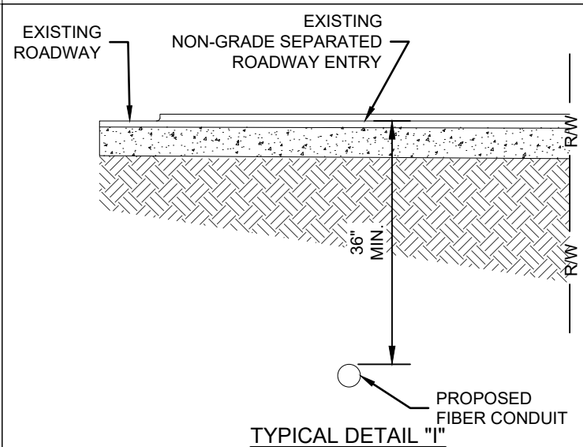
TYPICAL DETAIL "F"
HH WITH FLUSH MOUNT MARKER



TYPICAL DETAIL "G"
PARALLEL TO OTHER UTILITIES



TYPICAL DETAIL "H"
CROSSING OTHER UTILITIES



TYPICAL DETAIL "I"
CROSSING NON-GRADE SEPARATED ROADWAY ENTRY

3/10/2021 - 2:33 PM

REVISIONS

DATE	REV	DESCRIPTION

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TYPICAL DETAIL DRAWINGS

TY.01

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

Charles D Sparks
REGISTERED CIVIL ENGINEER

August 1, 2022
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Charles D. Sparks — No. C47029 — Exp. 3-31-24 — CIVIL — STATE OF CALIFORNIA

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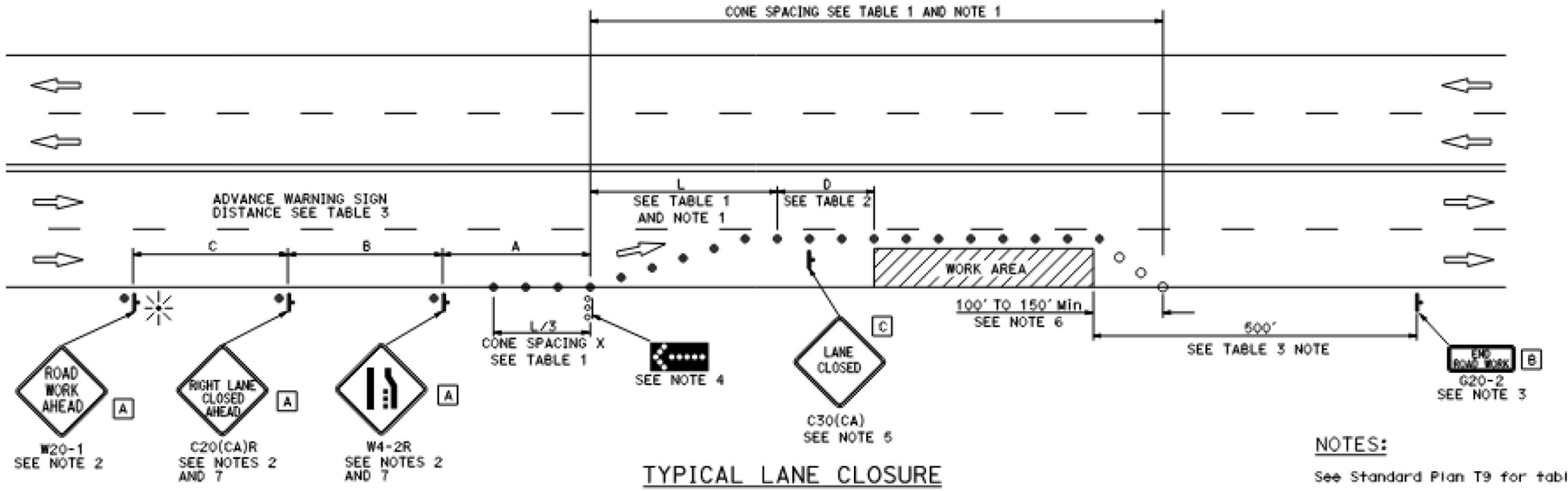

TYPICAL LANE CLOSURE

NOTES:

See Standard Plan T9 for tables.

Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

Provide at least one person to continuously maintain traffic control devices for lane closures.

LEGEND

- ● TRAFFIC CONE
- ○ TRAFFIC CONE (OPTIONAL TAPER)
- TEMPORARY TRAFFIC CONTROL SIGN
- FLASHING ARROW SIGN (FAS)
- FAS SUPPORT OR TRAILER
- PORTABLE FLASHING BEACON

SIGN PANEL SIZE (Min)

- [A] 48" x 48"
- [B] 36" x 18"
- [C] 30" x 30"

NOTES:

1. Portable delineators placed at one-half the spacing indicated for traffic cones may be used instead of cones for daytime closures only.
2. Each advance warning sign shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
3. A G20-2 "END ROAD WORK" sign shall be placed at the end of the lane closure unless the end of work area is obvious or ends within the larger project's limits.
4. A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at the top of crest vertical curve or on a horizontal curve.
5. Place C30(CA) "LANE CLOSED" sign at 500' to 1000' intervals throughout extended work area.
6. Length may be reduced by the Engineer to address site conditions.
7. Median lane closures shall conform to the details shown except that C20(CA)L and W4-2L signs shall be used.
8. For approach speeds over 50 MPH, use the "Traffic Control System for Lane Closure on Freeways and Expressways" plan for lane closure details and requirements.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON MULTILANE CONVENTIONAL HIGHWAYS

NO SCALE

T11

2022 STANDARD PLAN T11

310

6-24-22