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September 29, 2020

Via Electronic Mail
Karen La Bonte
Public Works Director
City of Cannon Beach
PO Box 368, Cannon Beach
Or 97110

RE: Roberts' Improvements to Nenana Ave.

Dear Ms. La Bonte:

Thank you for your many courtesies extended to the Roberts family in their efforts to establish their home in Cannon Beach. We also appreciate the insights and suggestions of the City's consulting engineer, Windsor Engineering to make this project the best it can be. As you know, the Roberts' home requires improving Nenana Ave. To date, the city's request has been to bring Nenana to current city street standards, and they have cooperated with the city toward that end. The Roberts' have applied for a right of way permit to complete the necessary road improvements, which is pending your review and approval. Windsor requested clarification on a few items regarding the Nenana Ave., road improvement project, but otherwise found compliance. In addition, the city manager raised some basic questions about the project.

This letter and its attachments are designed to respond to Windsor's requested clarifications and the City manager's questions. Please let us know if any questions remain. It is always the Roberts' wish to cooperate with the city. The Roberts' are excited to join the Cannon Beach community and look forward to your approval of their permit which is an important step for them to be able to do so.

Right of Access

The city manager wondered whether the Roberts family has the right to expect access to Nenana Ave. We believe it is helpful to answer that question. The Roberts family has well-established, common law right of access to Nenana Ave: "Oregon case law has established that an owner of property abutting a public road has a common-law right of access to its premises by means of the abutting road. *See, e.g., Schrunk*, 242 Or at 69 (abutting proprietor's right to use public road as means of ingress and egress is a property right); *Burk*, 200 Or at 228 (same); *Sweet et al. v. Irrigation Canal Co.*, 198 Or 166, 190-91, 254 P2d 700, *reh'g den*, 198 Or 166, 256 P2d 252 (1953) (abutting property owner has right of access that "is as much property as the soil within the boundaries of his lot"); *Barrett*, 117 Or at 223 (it is "unquestioned" that abutting property owner has right of access to and from his property by way of public road); *Iron Works*

v. O. R. & N. Co., 26 Or 224, 228-29, 37 P 1016 (1894) (abutting property owner has right of access that may not be taken without just compensation.”) *ODOT v. Alderwoods*, 358 Or 501, 511 (2015). A letter of well-known real estate expert, Alan Brickley, is attached confirming that the Roberts’ have this important property right of access.

As you know, the city can improve the Nenana right of way for this right of access or the Roberts family can. Typically, in my experience, the Roberts’ would be required to provide a half street improvement, but they have to date been asked by the city to do more and are willing to do so. At this point, only the Roberts’ property is served by Nenana Ave., and so the Roberts’ are willing to improve the road at their expense and maintain it, until such time as there are other users. But with the greatest of respect, the law is clear that the City may not deny the Roberts’ access to Nenana.

The city manager also wondered whether the Roberts family has the right to bring Nenana Ave to street standards, with which it does not now comply. As you know, the city’s code requires the road be improved to street standards to the extent reasonable, proportional, and practicable. CBMC 12.34.040(B) requires that roadways be constructed to the “minimum of paved roadway width and other structural elements necessary to provide proper functioning of the street as a transportation element.” Nenana Ave., as well as the western slope of Hemlock and the slope above Hemlock are an active landslide. This means improving Nenana as the Roberts propose, using a bridge format with pilings embedded in bedrock, is wise. Improving Nenana with a fill-type of street is not possible due to the fact that the weight of fill dirt risks exacerbating the landslide. Accordingly, it is evident that the Roberts’ proposal not only improves Nenana, but also provides additional stability to the public and private investments at risk from the landslide. The Nenana Ave right of way improvements that the Roberts’ family proposes, will achieve compliance with the city code in the best and most practicable manner. I believe you agree.

City Standards Require Approval

The city manager suggested he was concerned that the proposed improvement to Nenana could be denied because it does not strictly meet all city standards. Respectfully, this is incorrect. The proposed road improvement either directly meets required city standards for a local residential street (which would be its appropriate classification) or meets city standards expressly authorizing exceptions for the situation presented here. The Roberts ask for nothing the code does not allow.

The proposed road improvement is composed of two vehicular travel lanes, that are 10-feet. CBMC 12.34.050(A). There are no proposed gravel shoulders, but gravel shoulders are inappropriate for bridges and a bridge road improvement project is the only appropriate road improvement design available for Nenana. This is so regardless of whether it is developed to driveway or public street standards. My understanding is that you agree with this principle.

Per a speed study, there is adequate stopping sight distance, as documented by Mr. Clemow, a well-respected transportation engineer. Stopping sight distance (SSD) is the

AASHTO sight distance of special concern. The Roberts' professional traffic engineer has established the existence of adequate stopping sight distance in his report previously provided to your office. I understand that the city's consulting engineer, Windsor, agrees. Windsor did request supplemental analyses regarding intersection sight distance obstructions.

In his supplemental report attached Mr. Clemow responds to explain that there are no obstructions that interfere with intersection sight distance (ISD). ISD is now and will continue to be less than AASHTO recommends, but the city's code supports approval per CBMC 12.34.050(C), because Nenana is a hillside street; the applicants have made a reasonable attempt to comply with AASHTO standards and the deviation from ISD is minimized:

“On hillside streets, deviations from the horizontal and vertical AASHTO standards may be allowed at the discretion of the Director providing that:

1. A reasonable attempt has been made to conform with the standards.
2. Deviation from AASHTO standard is minimized.”

The proposal appropriately seeks an adjustment to the City grade standards. The topography does not allow improving the Nenana right of way to be any less steep than is proposed, but the proposed grade is much improved over the existing Nenana grade. The current Nenana right of way varies from grades exceeding 100% and has an average grade of 35%. The proposed Nenana Ave improvement lessens that grade to a maximum of 24% and an average grade of 16%. The total distance of these steeper grades is 135' in length – which is obviously less than 200,' in complete compliance with CBMC 12.34.050(D).

CBMC 12.34.050(E) expressly authorizes the City to modify the street design standards when, as here, topography and things like the immutable configuration of Hemlock at this location, make strict compliance with the standards “impractical.” The City's code contemplates modification here because it expressly lists the kind of “conditions that could create a need for modification” to be “steep slopes or other topographical or geologic conditions” as well as the “design of neighboring or adjacent street systems.” The City code asks only that the modifications be minimized as practical, in order to address special conditions. This has been achieved here, and we do not understand Windsor or you to state otherwise. Like you and Windsor, the City's code is not strident, but fair and, has been applied elsewhere and should be applied here, to approve the requested street improvement project.

There can be no denying that the Nenana Ave improvement project proposed by the Roberts family leaves the street in much better condition than it is now and makes the critically important investment in the initial improvement infrastructure such that other property owners, including the city, can extend or add a connecting driveway, without having to make the substantial upfront investment in designing and reconstructing the initial 200' of Nenana.

Sidewalks and ADA Accessibility

Windsor Engineering requested that Roberts' address "ODOT Bridge design manual 1.16.2" regarding pedestrian access. We note at the outset that no city standard requires compliance with any ODOT standard. Therefore, ODOT standards would, of course, provide no basis for denial of the project. Regardless, the reconstructed Nenana Ave right of way bridge has largely been designed with ODOT standards in mind and the proposal is consistent with the referenced ODOT provision.

The referenced ODOT provision says: "For the purpose of this document, the sidewalk of a bridge is a facility that, *if provided*, must be accessible and usable by people with disabilities, regardless of whether the bridge is in an urban or rural setting." No sidewalk is provided and, therefore, there is no ADA accessibility issue.

Another important note is that there is no City standard that requires a sidewalk anyway. Therefore, not having a specific pedestrian sidewalk would not provide a basis for denial. I believe you agree with this principle, as does Windsor.

There are four reasons why no formal sidewalk is required. First and foremost, no city standard requires a pedestrian access. Second, there are no destinations for pedestrians (the only destination at present is the Roberts' home), and there is no way for pedestrians to get to Nenana from Hemlock in any event, because Hemlock has no pedestrian facilities. Third, the existing Nenana Ave access and the proposed improved access are too steep for pedestrians in wheelchairs and would meet the ADA exception for a design exception for technical infeasibility. Fourth, if the City wished at some point to create a pedestrian destination that does not now exist, there is nothing about the Roberts' proposal that would foreclose the city from doing so.

But since there are no code provisions requiring a sidewalk it would of course be inappropriate to require the Roberts to install one because there is no essential nexus to any applicable standard for such a requirement as well as no rough proportionality to the impacts of the Roberts' development. *Hill v. City of Portland*, 293 Or App 283 (2018) ("the city cannot evade the requirement that it demonstrate that the impacts of a particular proposal substantially impede a legitimate governmental interest so as to permit the denial of a permit outright, simply by defining approval criteria that do not take into account a proposal's impacts.") and *Brown v. City of Medford* 251 Or App 42 (2012); see also *Koontz v. St. Johns River Water Management District*, 133 S. Ct. 2586 (2013).

Guardrail

Windsor requested additional plan detail for the end of the bridge and guardrails. Eric Watson has previously provided those to the city via a sharefile because of their large size. They can also be accessed through this link: <https://miller-se.sharefile.com/d-s731e6cebb264b49a>

I also provide additional detail from engineer Jason Morgan on documents attached to this letter.

Windsor also requested that the available intersection sight distance be demonstrated “showing the driver’s eye location, the vehicle outside the travel lane, and the clear zone within the Clear Sight Triangle.” The attached supplemental memorandum from Mr. Clemow addresses this issue. In sum, the guardrail of concern will not interfere with intersection sight distance.

On the south side of Nenana adjacent to Hemlock, a new bridge rail will be installed to replace the existing W-beam guardrail. The proposed design allows a driver to ‘see through’ the bridge rail and will not obstruct intersection sight distance.

Attached is a drawing showing the revised transition from bridge to guardrail.

Windsor also asked about easements to install guardrails on Hemlock. All existing public improvements, including the guardrail, are within the right-of-way. That means that they are either in the existing Hemlock right of way or the city has adversely possessed such land by virtue of the guardrails being there for decades. I suspect it is the former but regardless, the applicant’s replacement of the existing W-beam guardrail with a bridge rail only requires a City permit to perform the work.

Storm Drain Maintenance

Windsor requested that the Roberts establish that the City will be able to get to its horizontal drain pipes and their terminus below that are below the end of the Nenana Ave right of way:

The proposal will provide the city access to its drains at the beach providing both convenient street access to get to them and the Roberts are willing to allow city employees to access the drains from their property stairs to the beach. Machinery, if needed, could be lifted over Nenana to the beach below. The proposal improves the city’s access to its drains.

I hope you find this helpful. I understand that the Roberts’ engineers have worked with Windsor to develop this response and the attachments. But if we missed anything please feel free to circle back and let us know. We appreciate you and your guidance.

Very truly yours,



Wendie L. Kellington

WLK:wlk

CC: Stan and Rebecca Roberts



BRICKLEY LEGAL

Real Property Legal Consulting Services

October 21, 2020

Wendie Kellington
Kellington Law Group PC
1335 Chandler Road
Lake Oswego, OR 97034

Re: Dedicated Street Nenana Avenue
Cannon Beach, Oregon

Dear Wendie:

I have reviewed the map associated with Lot 13 of Tolovana Park owned by your client (Roberts"). I note that it abuts a dedicated street known as Nenana Avenue. It is my understanding from you and from review of aerial photographs that this street is undeveloped for public use, but it does retain its status a dedicated street.

In my experience as a real estate attorney for over 50 years, including my experience as counsel for various title companies, it is my opinion that this dedicated street provides a legal means of access to abutting properties, in this case your clients property. In that it is within the limits of a city, that city does have control over any upgrading of the access from its undeveloped status; however, absent a vacation proceeding, the city cannot limit the Roberts' access to the street area from their adjoining property as they have a property right of access.

If I can provide any additional information, please contact me.

Very truly yours,

Alan K. Brickley
Attorney at Law

1616 SW Harbor Way #401
Portland, OR 97201

503-928-1702
akbrickley@me.com



October 21, 2020

City of Cannon Beach
Attention: Karen LaBonte, Public Works Director
163 E Gower Street
Cannon Beach, Oregon 97110

Re: Roberts Property – Nenana Avenue Sight Distance Analysis – Cannon Beach, Oregon
Technical Letter #1 – Supplemental Sight Distance Analysis

C&A Project Number 20200803.00

Dear Ms. LaBonte,

This transportation analysis supplements the September 12, 2020 Roberts Property – Nenana Avenue Sight Distance Analysis (Sight Distance Analysis) prepared by Clemow & Associates and addresses the September 22, 2020 City of Cannon Beach Nenana Avenue Plan Review #3 Memorandum prepared by Windsor Engineers.

This analysis specifically addresses the following:

1. Intersection Sight Distance and Obstacle Evaluation
2. Proposed Sign Locations
3. Summary

1. INTERSECTION SIGHT DISTANCE AND OBSTACLE EVALUATION

City Comment 6.2 states, *“Per the traffic study provided to Windsor on 9/14, the stopping sight distance (SSD) is adequate but the intersection sight distance (ISD) to the South is significantly less than the recommended distance. To further address sight distance, the Applicant shall:*

- Demonstrate the available ISD at a minimum scale of 1" = 20" using a sight distance triangle in the study. (Showing the driver's eye location, the vehicle outside of the travel lane, and the clear zone within the Clear Sight Triangle.)

Excerpt from traffic study, per [American Association of State Highway and Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets] AASHTO guidelines, ISD was measured from a driver's eye height of 3.5 feet and 14.5 feet from the edge of the nearest travel lane to an object height of 3.5 feet above the roadway surface.”

Roberts Property – Nenana Avenue Sight Distance Analysis – Cannon Beach, Oregon
C&A Project Number 20200803.00
October 21, 2020
Page 2

Applicant Response: Additional analysis has been performed and the attached Figures 5 and 6 – *Intersection Sight Distance – Left-Turn from Stop Plan and Profile* have been prepared measuring sight distance per AASHTO guidelines, with the following additional summary comments:

- At the proposed Nenana Avenue access location, a section of existing guardrail adjacent to Hemlock, within the Nenana right of way, will be removed.
- On the north side of Nenana, a new guardrail will be installed, connecting to the bridge rail and extending a short distance adjacent to Hemlock. This guardrail section is not within the driver's line of sight when considering intersection sight distance (ISD); therefore, it does not obstruct ISD.
- On the south side of Nenana, the bridge rail will extend approximately 15 feet to the south adjacent to Hemlock. This bridge rail section is within the driver's line of sight when considering ISD; however, as illustrated in the bridge rail standard detail (submitted separately), the design allows a driver to 'see through' the bridge rail. Therefore, the bridge rail does not obstruct ISD.
- On both the north and south sides of Nenana, the bridge and pedestrian rails are within the driver's line of sight when considering ISD; however, as illustrated in the bridge and pedestrian rail standard details (submitted separately), the design allows a driver to 'see through' the rails. Therefore, the bridge and pedestrian rails do not obstruct ISD.
- Consistent with findings contained in the *Sight Distance Analysis*, ISD is not met for an eastbound left-turning vehicle looking to the south (but it is not further obstructed by the bridge and pedestrian rails, or the guardrail). However, stopping sight distance (SSD) is met for a northbound vehicle on Hemlock and it is anticipated the turning movement will operate safely.

2. PROPOSED SIGN LOCATIONS

As identified in the attached Figure 6, the applicant is recommending several traffic control signs to be installed with the construction of Nenana. It is recommended the City consider the installation of these signs to alert motorists on Hemlock of the Nenana intersection, to prevent unsafe turning movements, and to prevent parking on Nenana. It is further recommended that all sign installations be consistent with existing City signing standards.

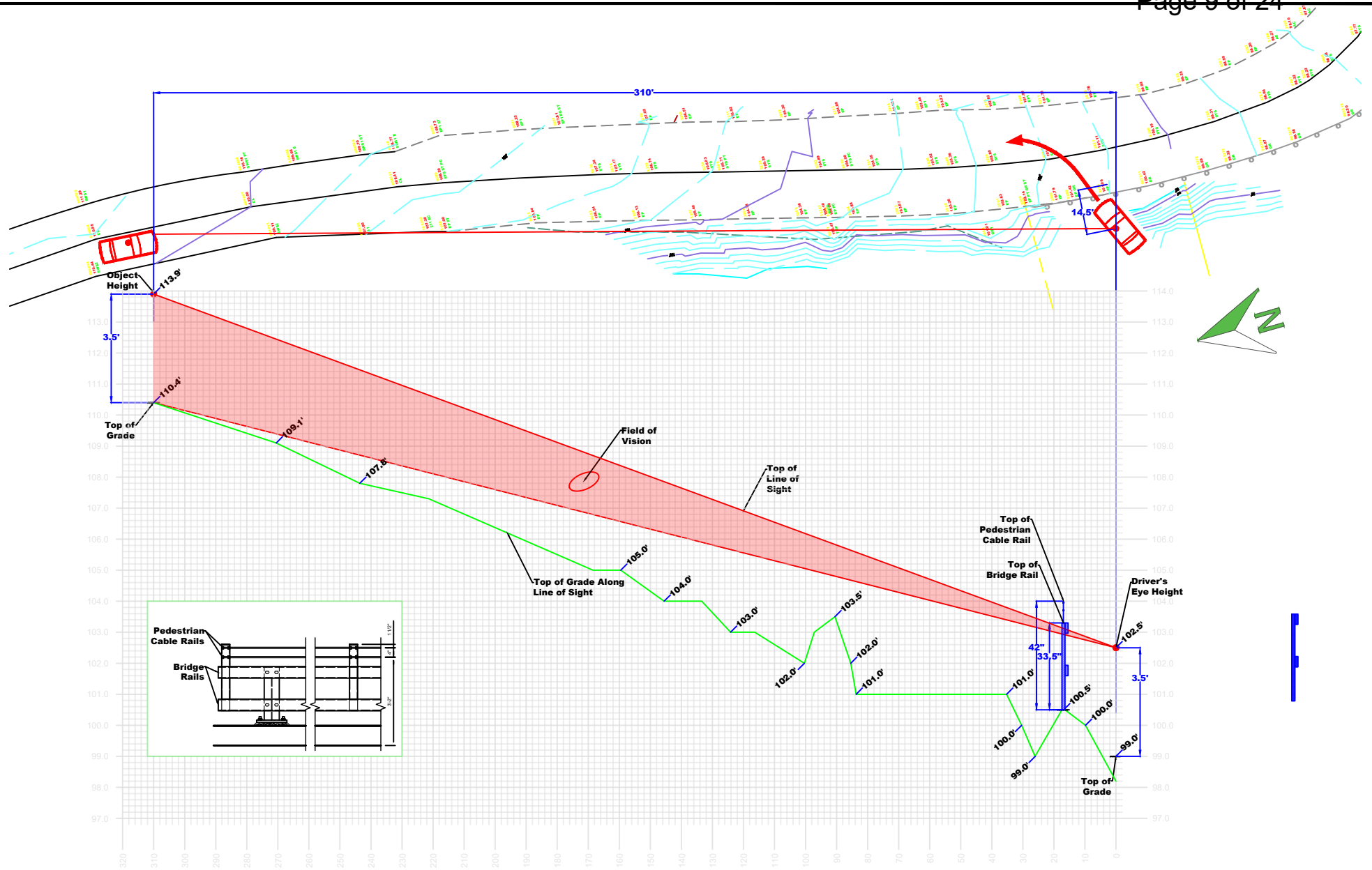
Sincerely,

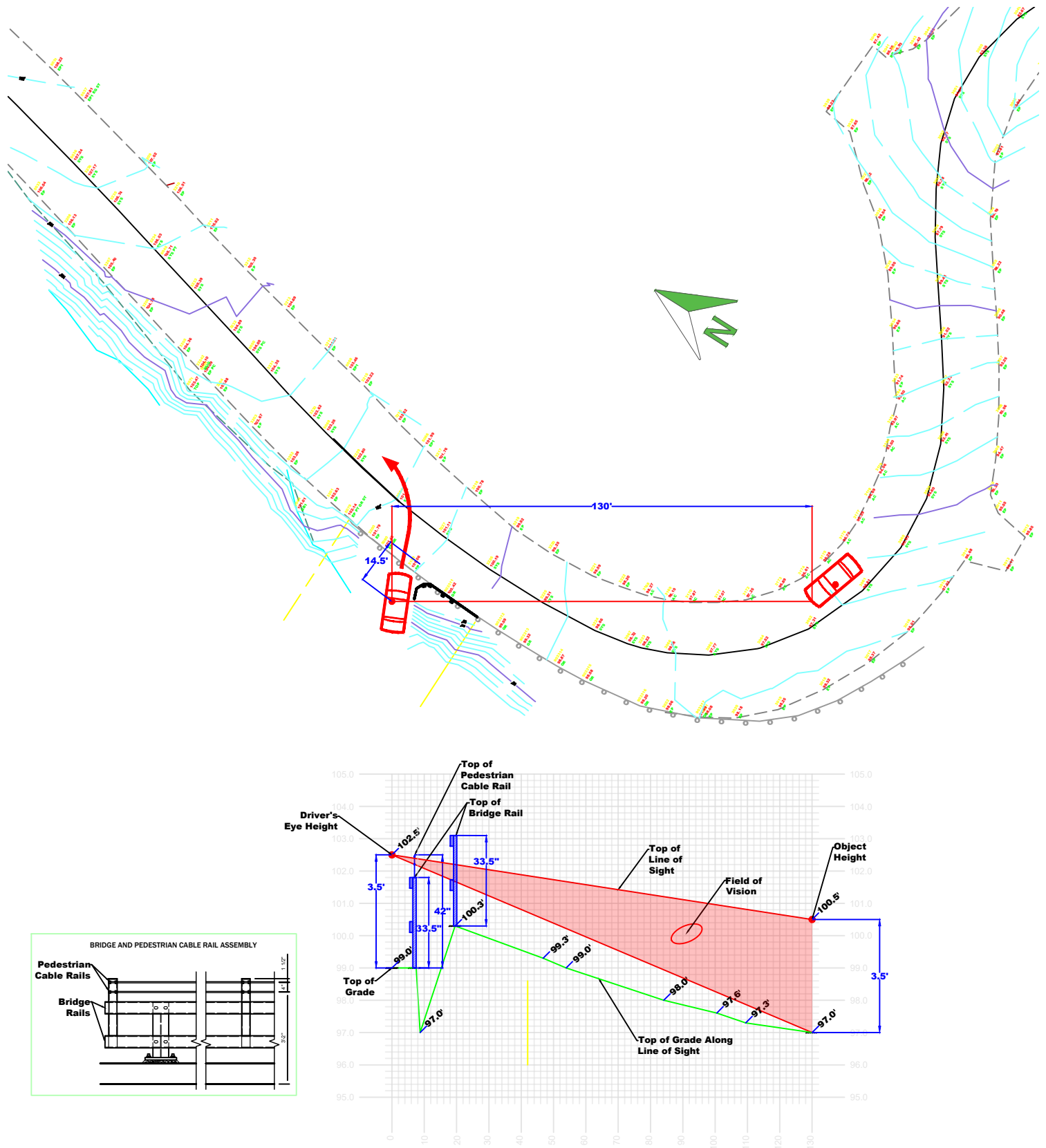


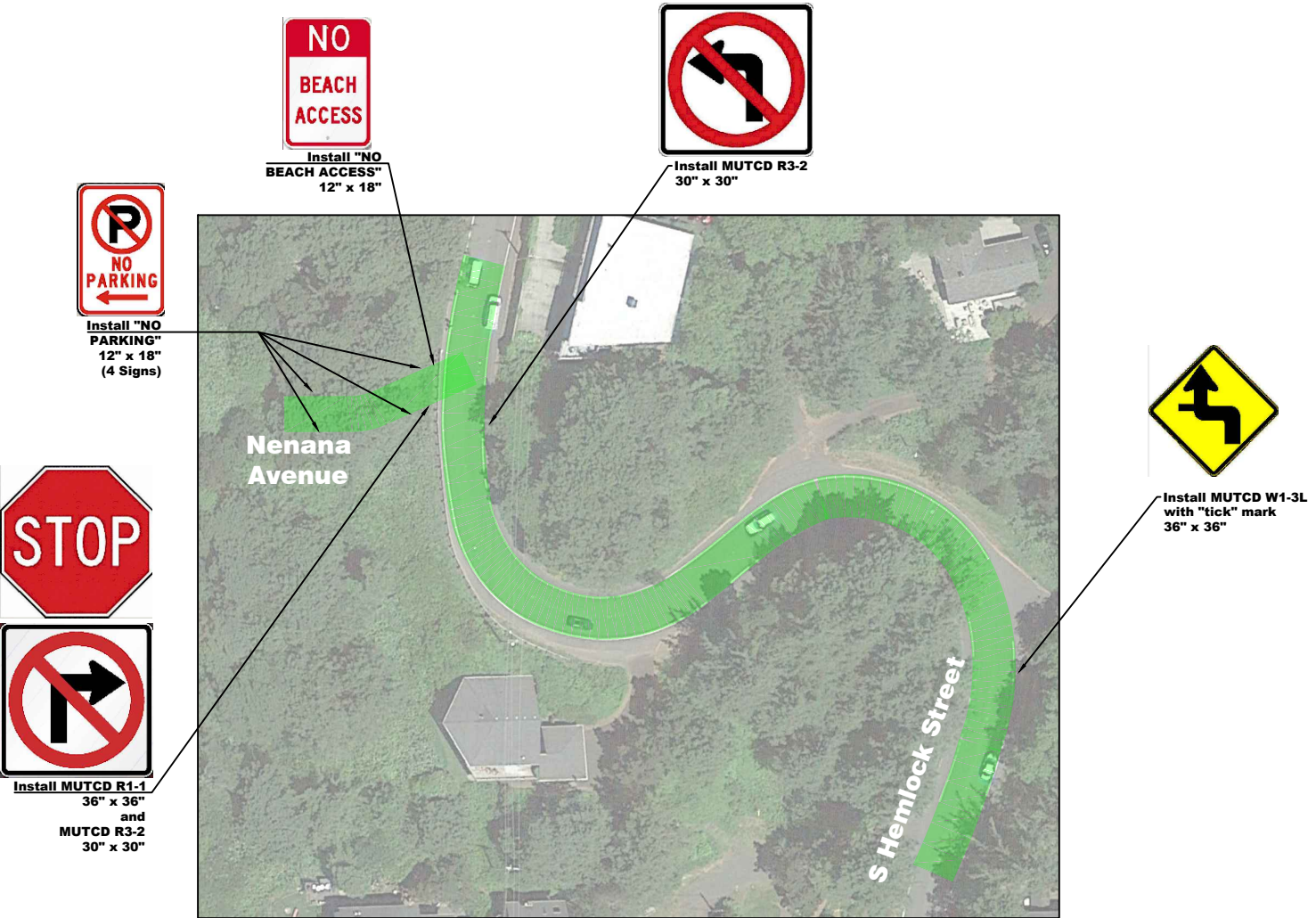
Christopher M. Clemow, PE, PTOE
Transportation Engineer



Attachments: Figures 5, 6, and 7 – Sight Distance and Signing Figures







STANLEY ROBERTS
TAX LOT 600, NENANA AVE, CANNON BEACH
SITE PLAN

PART OF A SET OF DEVELOPMENT PLANS THAT INCLUDES ARCHITECTURAL
PLANS BY JAY RASKIN, AIA, AND STRUCTURAL ENGINEERING PLANS BY MILLER
CONSULTING ENGINEERING, INC.

UTILITY LOCATE ONE CALL
(1-800-332-2344) or (8-1-1)

ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY
THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH
IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN
COPIES OF THE RULES BY CALLING THE CENTER. (NOTE: THE TELEPHONE
NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503)
232-1987).

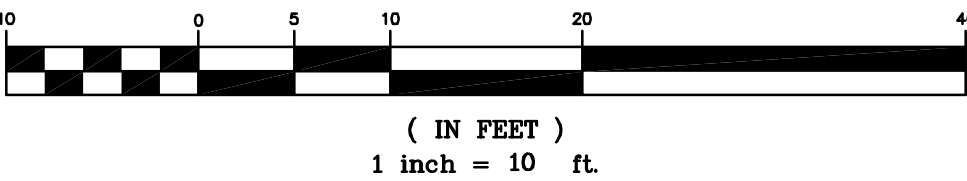
SHEET INDEX

1. ROAD LAYOUT
2. CURRENT DRAINAGE LAYOUT
3. PROPOSED VEGETATION REMOVAL
4. EXCAVATION PLAN/GRADING PLAN
5. UTILITY LAYOUT
6. STORM DRAIN SYSTEMS
7. SEWER PROFILE AND DETAILS
8. ROADWAY PROFILE
9. DRIVEWAY PROFILES
10. APPROXIMATE FINAL GRADE HEIGHTS
11. DETAILS

LEGEND

	PROPERTY LINE
	EXISTING ROADWAY
	EXISTING PATH
	PROPOSED ROADWAY
	CLEARING AREA
	CONSTRUCTION FENCING
	SILT FENCING
	STRAW WATTLE
	EXISTING CONTOUR
	FINAL/GRADING CONTOUR
	WATER LINE
	SEWER LINE
	GAS LINE
	CATV/PHONE/POWER LINE
	STORM DRAIN LINE
	EXISTING SUBSURFACE DRAINLINE
	HOUSE
	ROAD SIGNS
	FOLLOW MUTCD REQUIREMENTS

GRAPHIC SCALE



NOTES

TOPOGRAPHIC INFORMATION
FROM S&F LAND SERVICES,
DATED JAN. 22, 2020.

1
1
SITE LAYOUT
SCALE: 1"=10'



MORGAN CIVIL
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PO BOX 358
MANZANITA, OR 97130
(503) 801-6016
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JOB NO.
#19-02-PAT
DATE
OCT. 18, 2020



STANLEY ROBERTS

TAX LOT 600 - NENANA AVENUE
SITE LAYOUT

CANNON BEACH/MAP 5N 10W 31

SHEET

C1

OF 13



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RENEWAL DATE: DECEMBER 31, 2020

STANLEY ROBERTS
TAX LOT 600 - NENANA AVENUE
EXISTING DRAINAGE LAYOUT

SHEET

C2

OF 13

CANNON BEACH/MAP 5N 10W 31

1 2 DRAINAGE CONNECTION NO SCALE

DRAINAGE SCHEMATIC
NENANA AVE DISCHARGE PIPES

LOCATE EXISTING DRAINAGE PIPE OUTLETS IN RIGHT-OF-WAY.

CONNECT 2"Ø PVC PIPE TO EACH OUTFALL WITH FERNCO FITTING. EXTEND PVC ±2' DOWNSLOPE.
USE FOUR (4) 8"Ø HDPE 90° BENDS, AND ONE 8"x4" TEE.
USE WATER-TIGHT GASKETS BETWEEN ALL FITTINGS.

REMOVE SOIL BELOW THE ENDS OF THE PIPES TO ALLOW 8"Ø 90° HDPE FITTINGS BELOW EACH DISCHARGE PIPE, AS SHOWN.

SET FITTINGS TO REST ENTIRELY BELOW PIPES, NO CONNECTION OR OBSTRUCTION OF PIPE.

CUT HOLE INTO TOP OF HDPE TEE TO ALLOW WATER FROM CENTER PIPE TO ENTER. NO OBSTRUCTION OR CONNECTION TO PIPE.

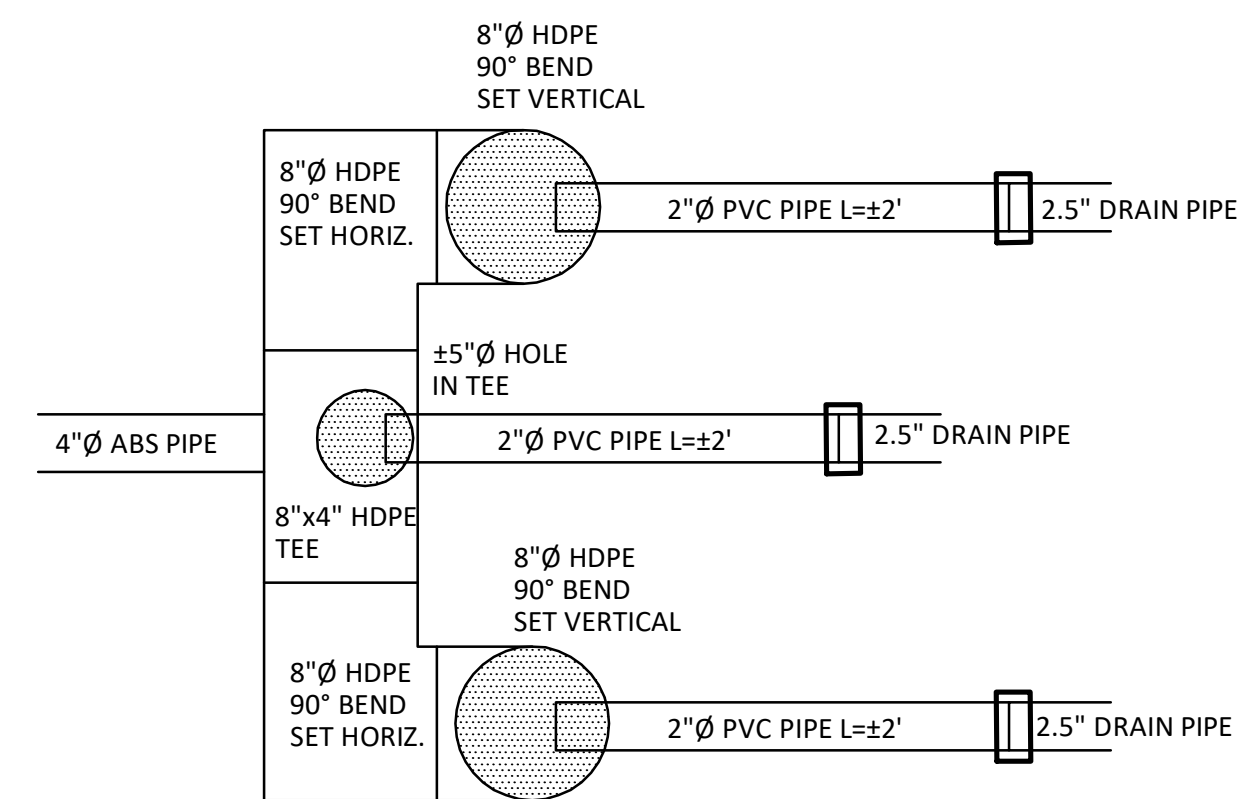
CONNECT 4"Ø ABS DISCHARGE PIPE TO TEE, WATER-TIGHT.

USE 4"Ø ABS. L=±125 FT. SOLVENT WELD ALL JOINTS.

END PIPE MINIMUM OF 5 FT FROM THE EDGE OF VEGETATION AT BEACH. END PIPE WITH TEE. DISCHARGE INTO ROCK PADS.

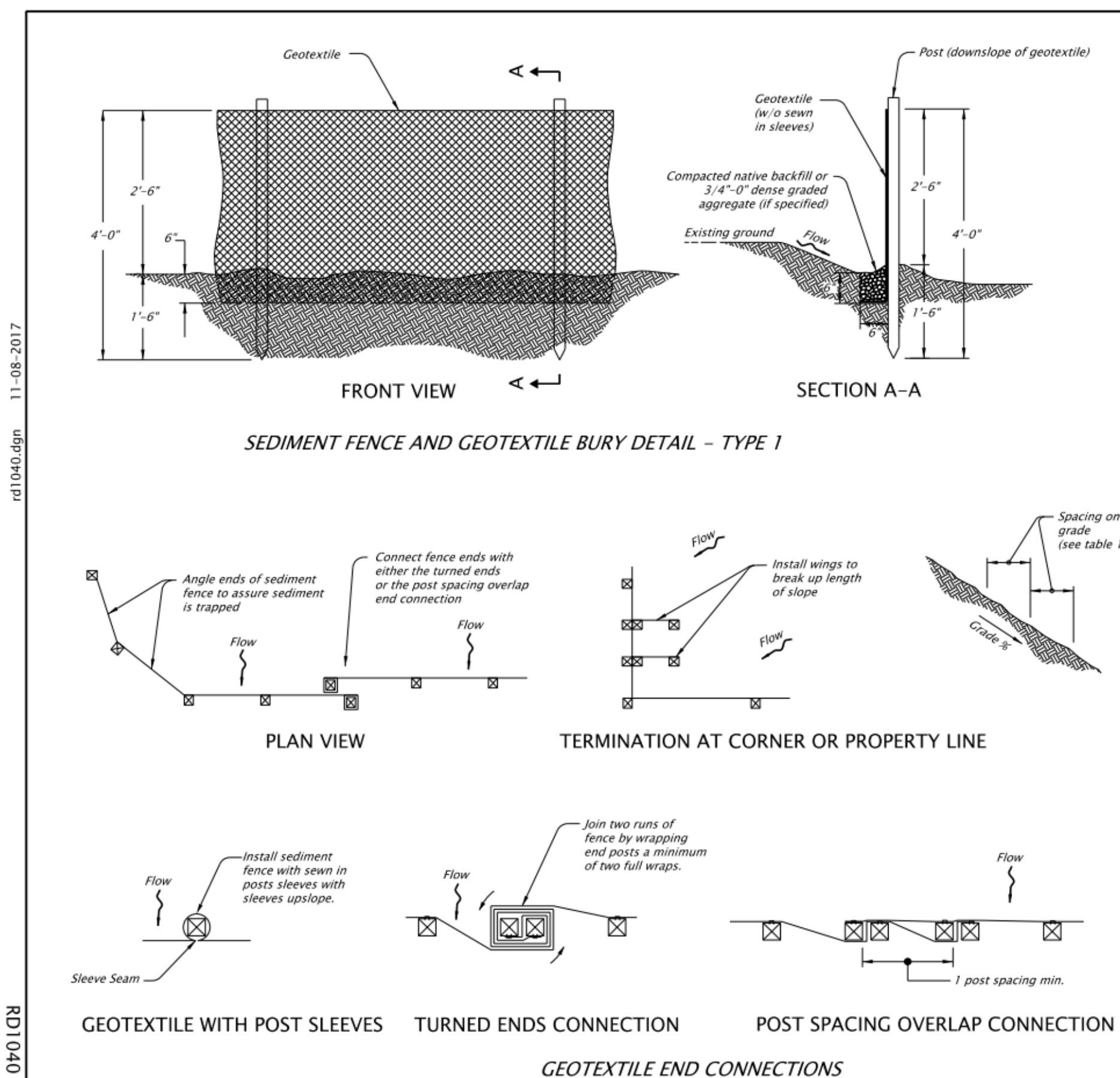
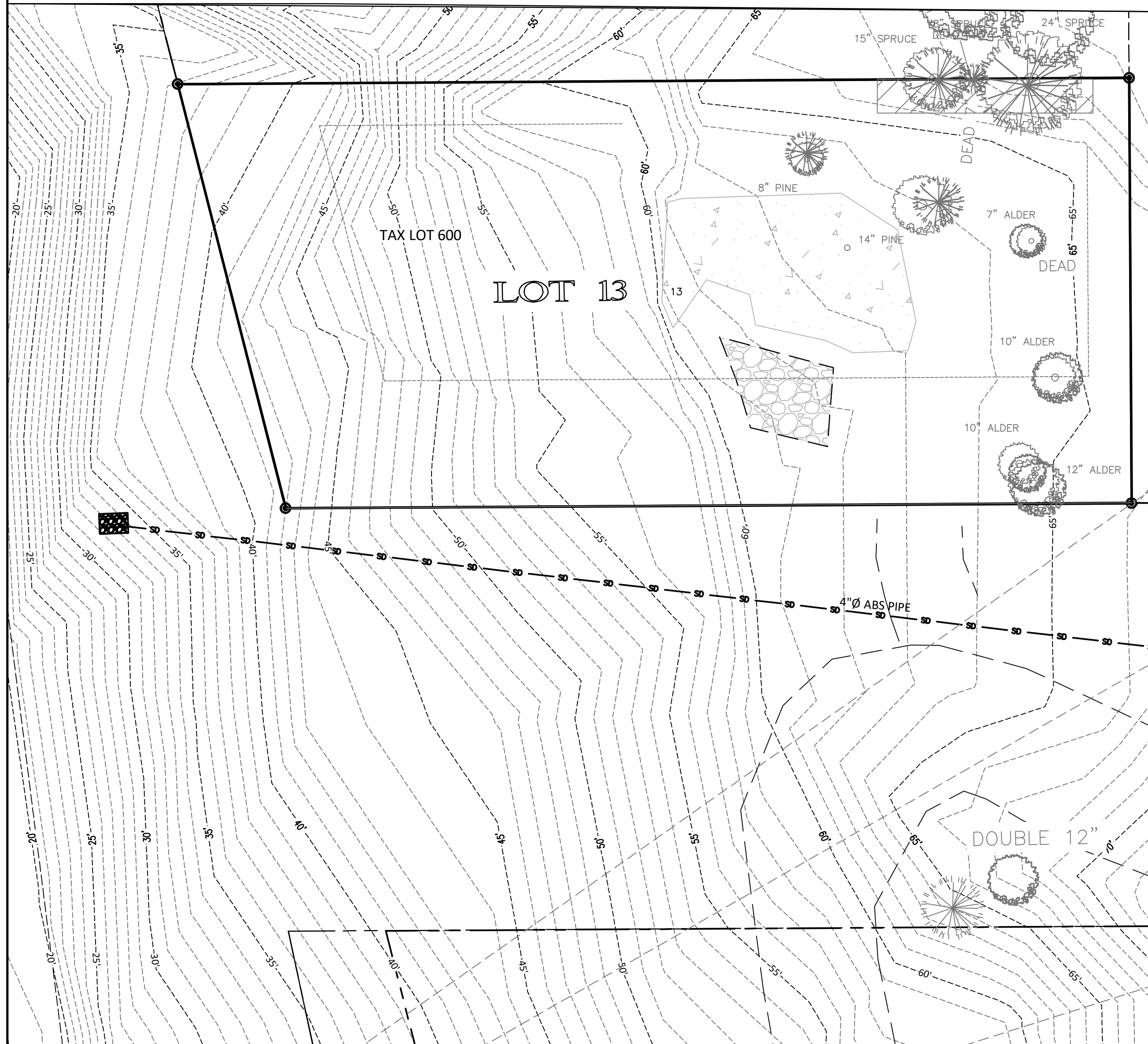
TWO ROCK PADS TO CONSIST OF 1/4 CY OF DRAIN ROCK EACH.
-4'x2'x8" MINIMUM.

NOTES
DR: EXISTING 2.5"Ø (O.D.)
STEEL PIPES - SUBSURFACE
DRAINS.

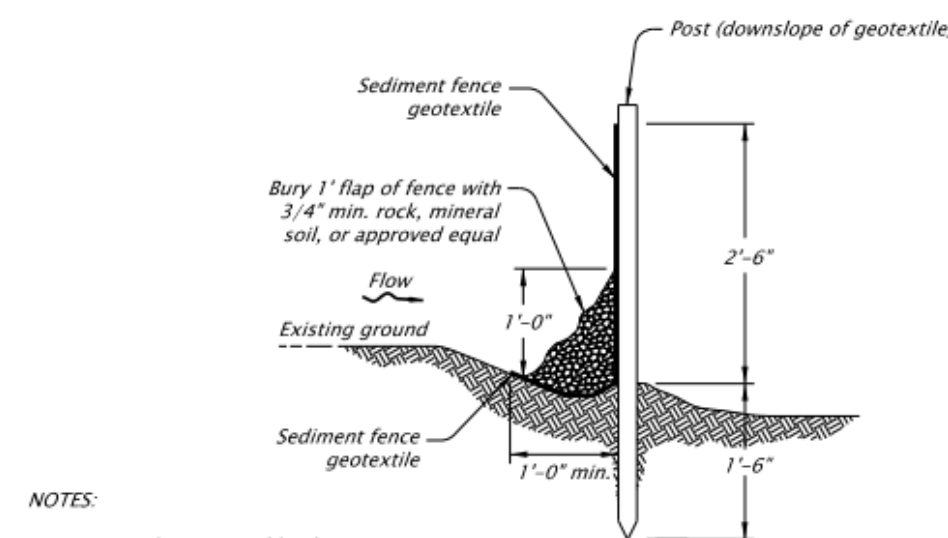


PLAN VIEW

SECTION VIEW



2 2 SILT FENCING NO SCALE



NOTES:
1. Use must be approved by the engineer.
2. Not approved for use with sediment fencing with sewn-in post sleeves.

ALTERNATE SEDIMENT FENCE W/O TRENCHING - TYPE 2

NOTES:

1. Use 2" X 2" wood fence posts.
2. Posts to be installed on downhill side of sediment fence geotextile. Position posts to prevent separation from geotextile.
3. Compact filter fabric trench backfill and soil on uphill side of fence.
4. Locate fence no closer than three feet to the toe of a slope.
5. Wing spacing shall comply with table 1.

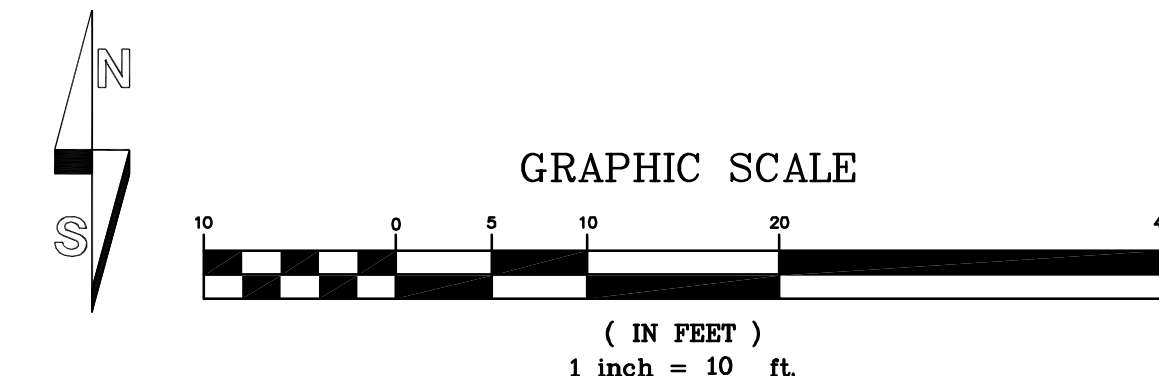
TABLE 1 FENCE SPACING FOR GENERAL APPLICATION INSTALL PARALLEL ALONG CONTOURS AS FOLLOWS	
GRADE	MAXIMUM SPACING ON GRADE
Grade < 10%	300'
10% ≤ Grade < 15%	150'
15% ≤ Grade < 20%	100'
20% ≤ Grade < 30%	50'
30% ≤ Grade	25'

TABLE 2 POST SPACING	
6'	Sediment Fence with Geotextile elongation less than 50%
4'	Sediment Fence with Geotextile elongation 50% or more

CALC. BOOK NO. 6403, 6404, 6405		BASELINE REPORT DATE November 2017	
The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.		NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications	
		OREGON STANDARD DRAWINGS	
		SEDIMENT FENCE	
DATE		REVISION DESCRIPTION	
2018			

Effective Date: June 1, 2020 - November 30, 2020

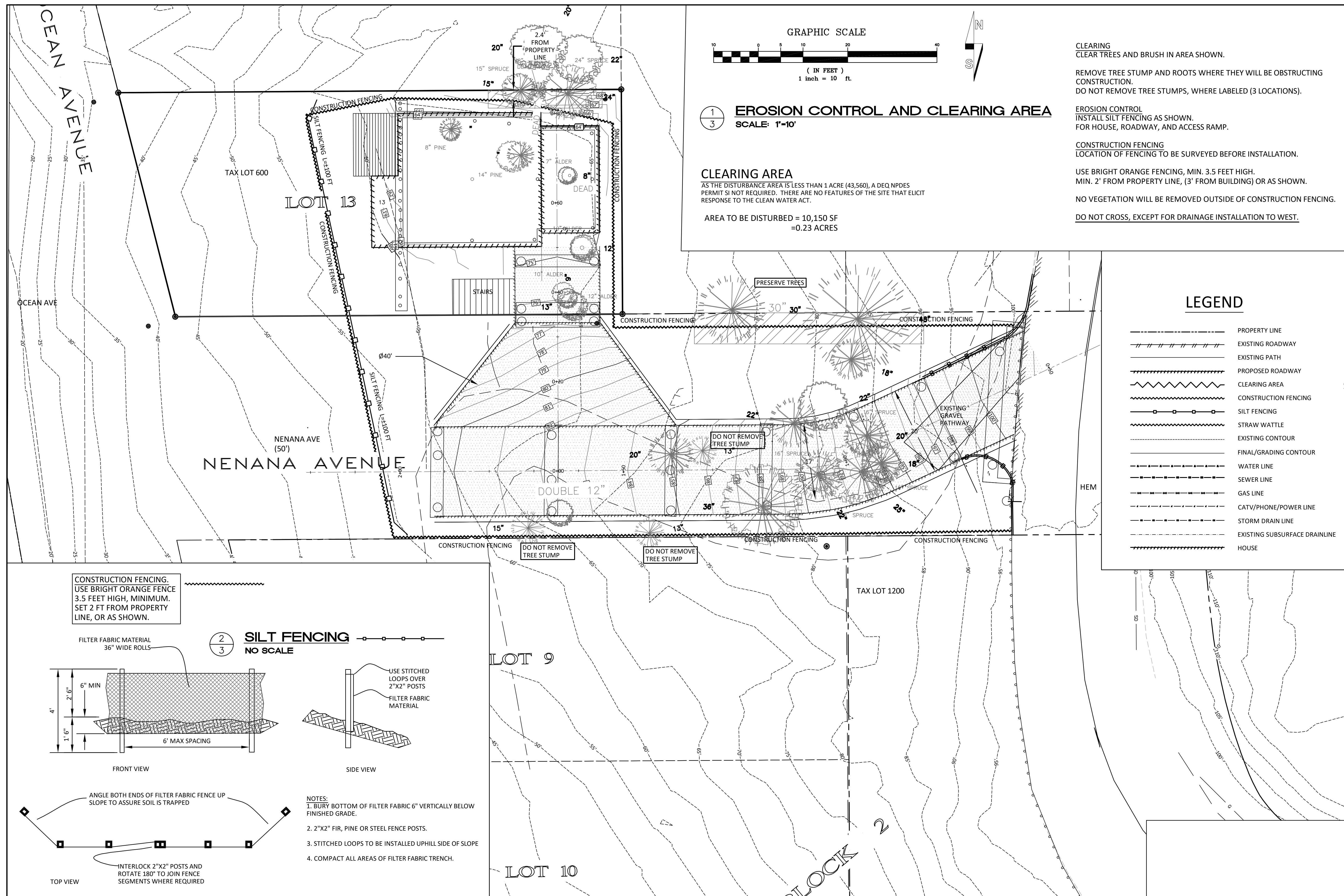
RD1040



3 2 NENANA DRAINAGE - CURRENT SCALE: 1"=10'

LEGEND

---	PROPERTY LINE
	EXISTING ROADWAY
	EXISTING PATH
	PROPOSED ROADWAY
	CLEARING AREA
	CONSTRUCTION FENCING
	SILT FENCING
	STRAW WATTLE
---	EXISTING CONTOUR
---	FINAL/GRADING CONTOUR
---	WATER LINE
---	SEWER LINE
---	GAS LINE
---	CATV/PHONE/POWER LINE
---	STORM DRAIN LINE
---	EXISTING SUBSURFACE DRAINLINE
	HOUSE





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RENEWAL DATE: DECEMBER 31, 2020

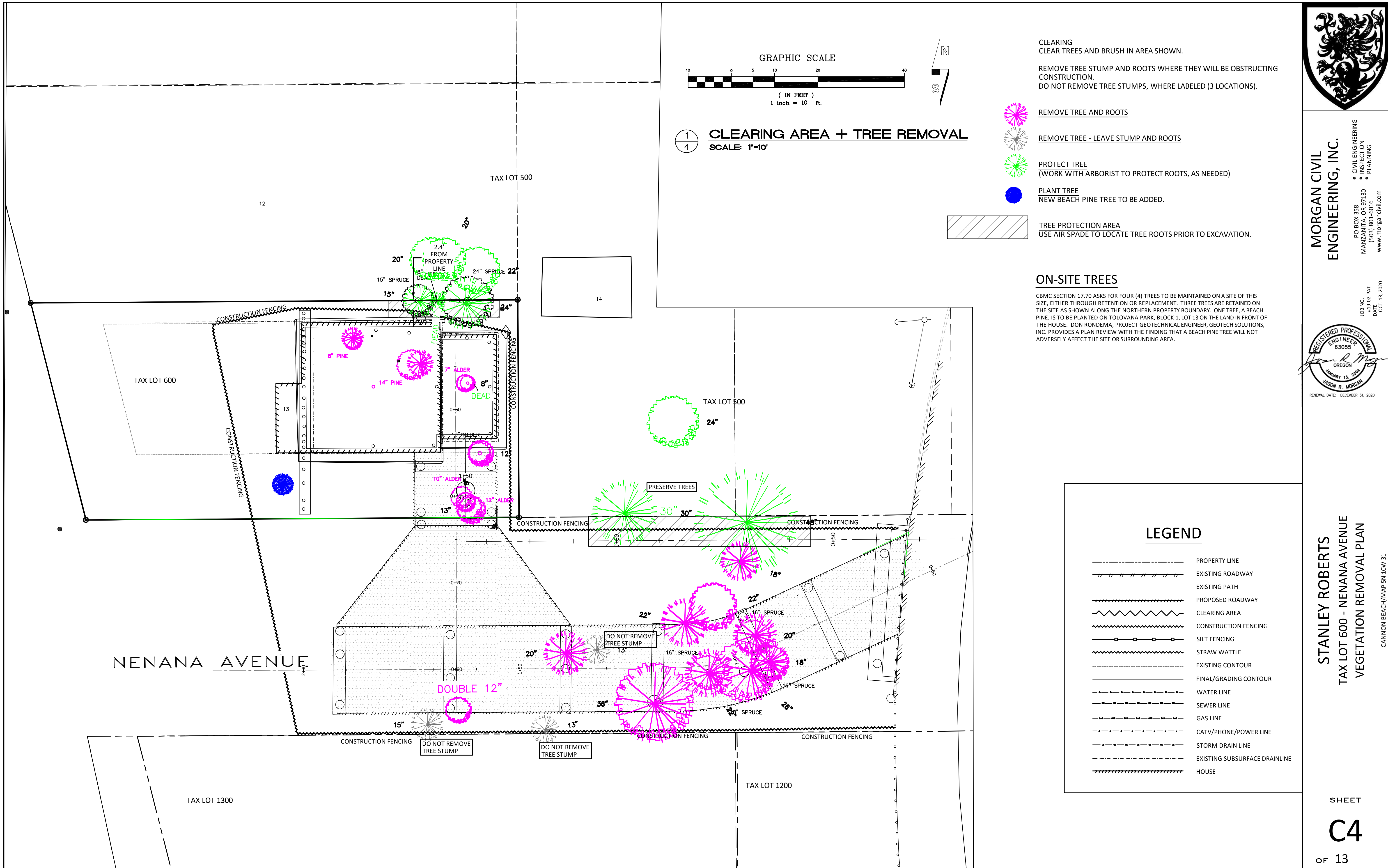
STANLEY ROBERTS
TAX LOT 600 - NENANA AVENUE
VEGETATION REMOVAL PLAN

CANNON BEACH/MAP 5N 10W 31

SHEET

C4

OF 13

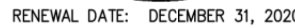




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- INSPECTION
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OB NO. #19-02-PAT
DATE OCT. 18, 2020



CANNON BEACH/MAP 5N 10W 31

C5

OF 13



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STANLEY ROBERTS
TAX LOT 600 - NENANA AVENUE
UTILITY LAYOUT

CANNON BEACH/MAP 5N 10W 31

SHEET

C6

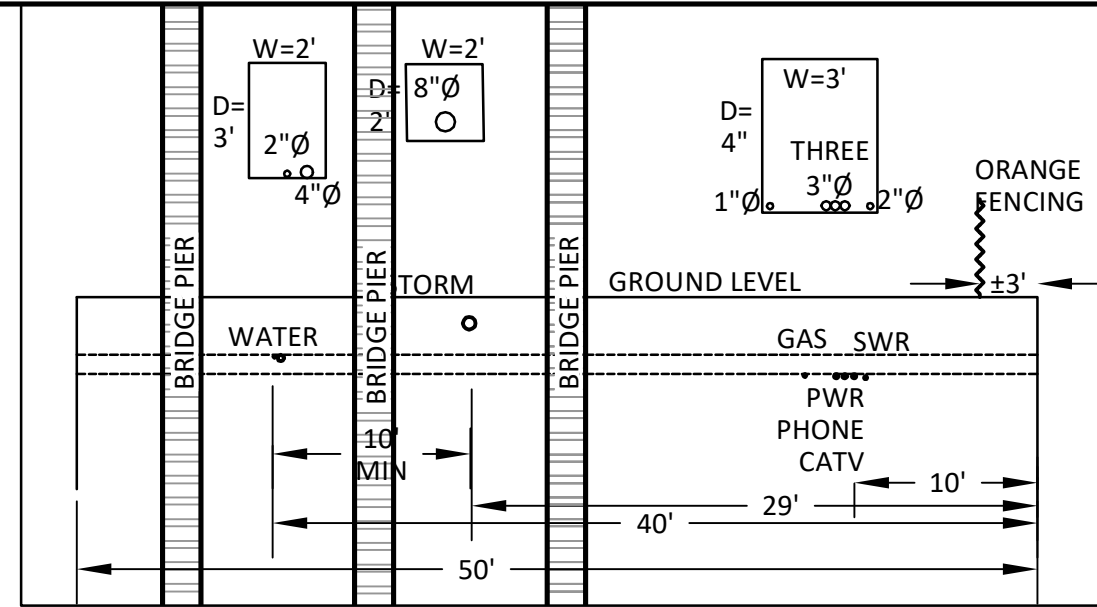
OF 13

2
6

UTILITY SECTION

SCALE: 1"=10'

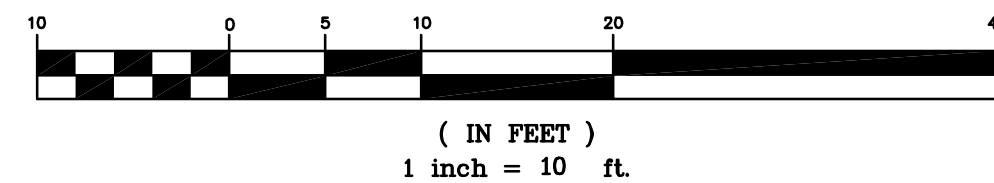
LOOKING WEST
STA 1±40



LEGEND

---	PROPERTY LINE
///	EXISTING ROADWAY
---	EXISTING PATH
---	PROPOSED ROADWAY
---	CLEARING AREA
---	CONSTRUCTION FENCING
---	SILT FENCING
---	STRAW WATTLE
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---	WATER LINE
---	SEWER LINE
---	GAS LINE
---	CATV/PHONE/POWER LINE
---	STORM DRAIN LINE
---	EXISTING SUBSURFACE DRAINLINE
---	HOUSE

GRAPHIC SCALE



3
6

UTILITY LAYOUT

SCALE: 1"=20'

UTILITIES

COORDINATE UTILITY CONNECTIONS WITH CITY AND UTILITY COMPANIES. SEWER, WATER, GAS, POWER, ETC. ALL UTILITIES TO BE MIN 3' DEEP.

USE FLEXIBLE HDPE CONDUIT FOR WATER AND SEWER LINES. INSTALL IN SINUOUS MANNER TO ALLOW FOR GROUND MOVEMENT.

DRY STAND PIPE - USE 3"Ø D.I. PIPE, ALL RESTRAINED JOINTS. WITH FDC CONNECTIONS ON EACH END.

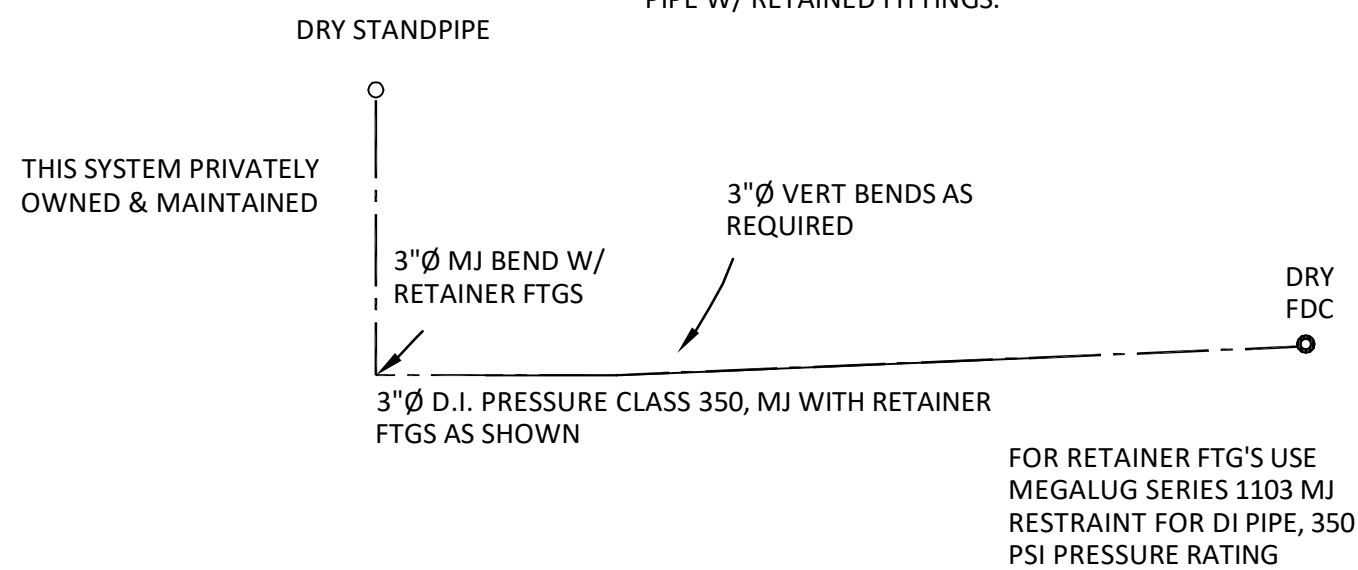
STORMWATER - USE HDPE OR PVC PIPE. WATER-TIGHT.

SEWER PUMP - USE DUPLEX SYSTEM. E/ONE DR152-93 PUMP SYSTEM.

CONTROL/ALARM - VISIBLE & AUDIBLE ALARMS - E/ONE SENTRY PROTECT PLUS ALARM PANEL.

STAND PIPE LAYOUT

NO SCALE



SEWER NOTES

- SEWER PUMP - SEE DETAILS SHEET 6
- 2"Ø HDPE SEWER PIPE
- 2"Ø SEWER CHECK VALVE
- CONNECT TO SEWER MAIN WITH 2"Ø SERVICE SADDLE. CONNECT TO TOP OF PIPE.

WATER NOTES

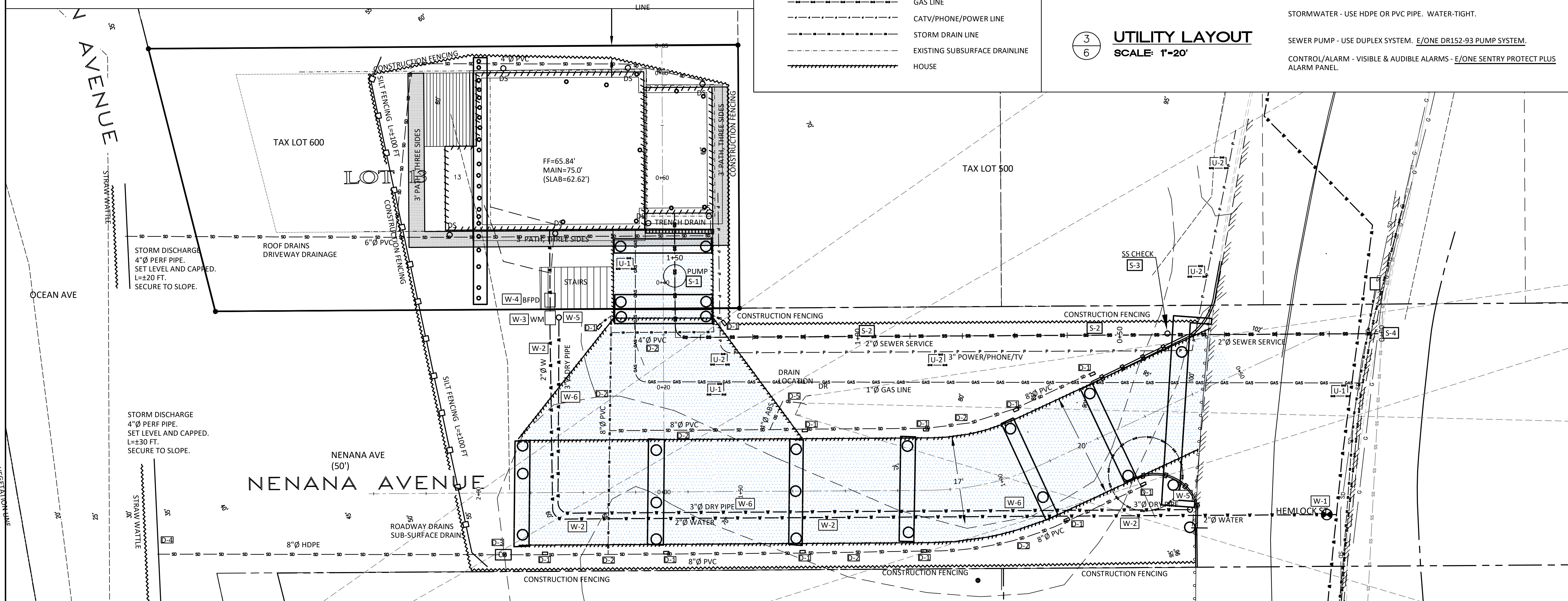
- CONNECT TO 8"Ø HDPE WATER MAIN WITH 2" SADDLE.
- INSTALL 2"Ø HDPE PIPE.
- INSTALL 1"Ø WATER METER AT EDGE OF RIGHT-OF-WAY.
- INSTALL BACKFLOW PREVENTION DEVICE ON PRIVATE PROPERTY.
- FDC STAND PIPE.
- 3"Ø D.I. DRY PIPE, RESTRAINED.

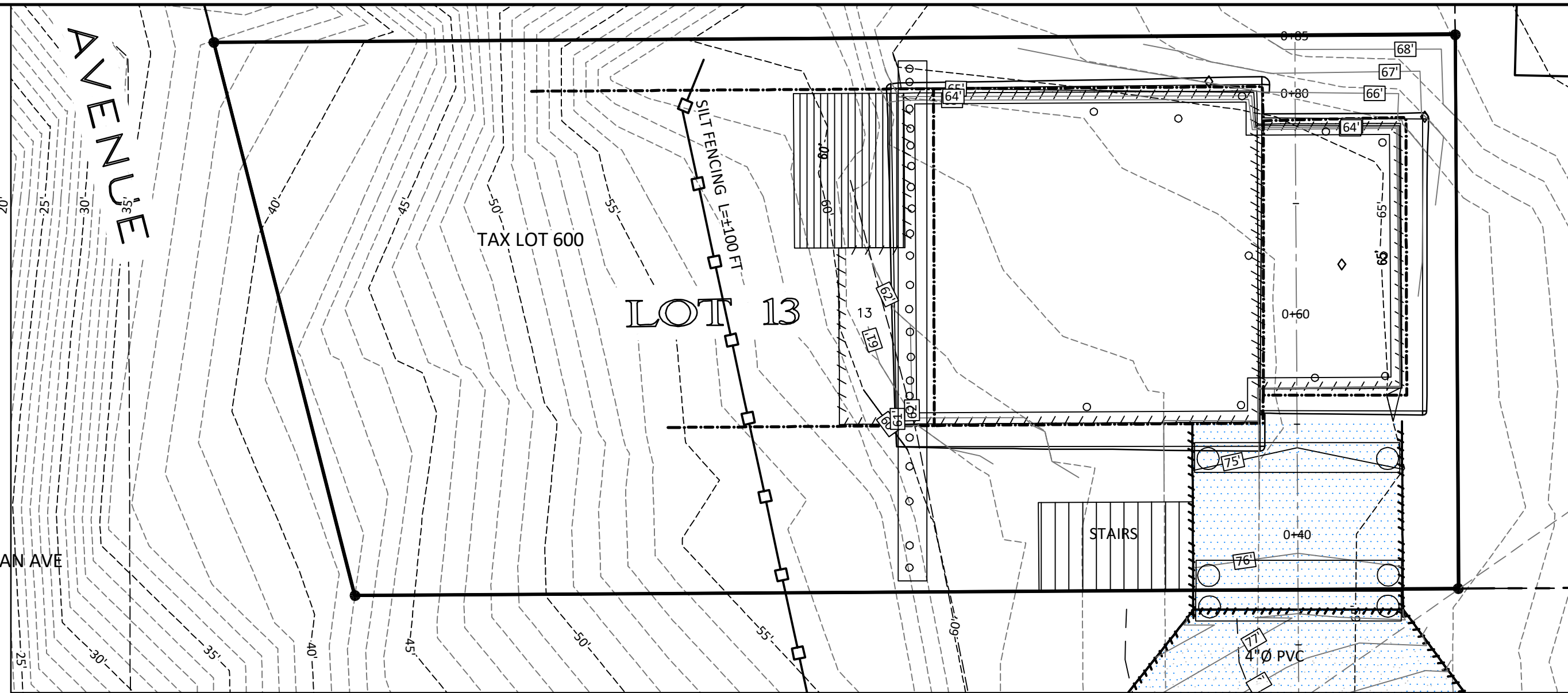
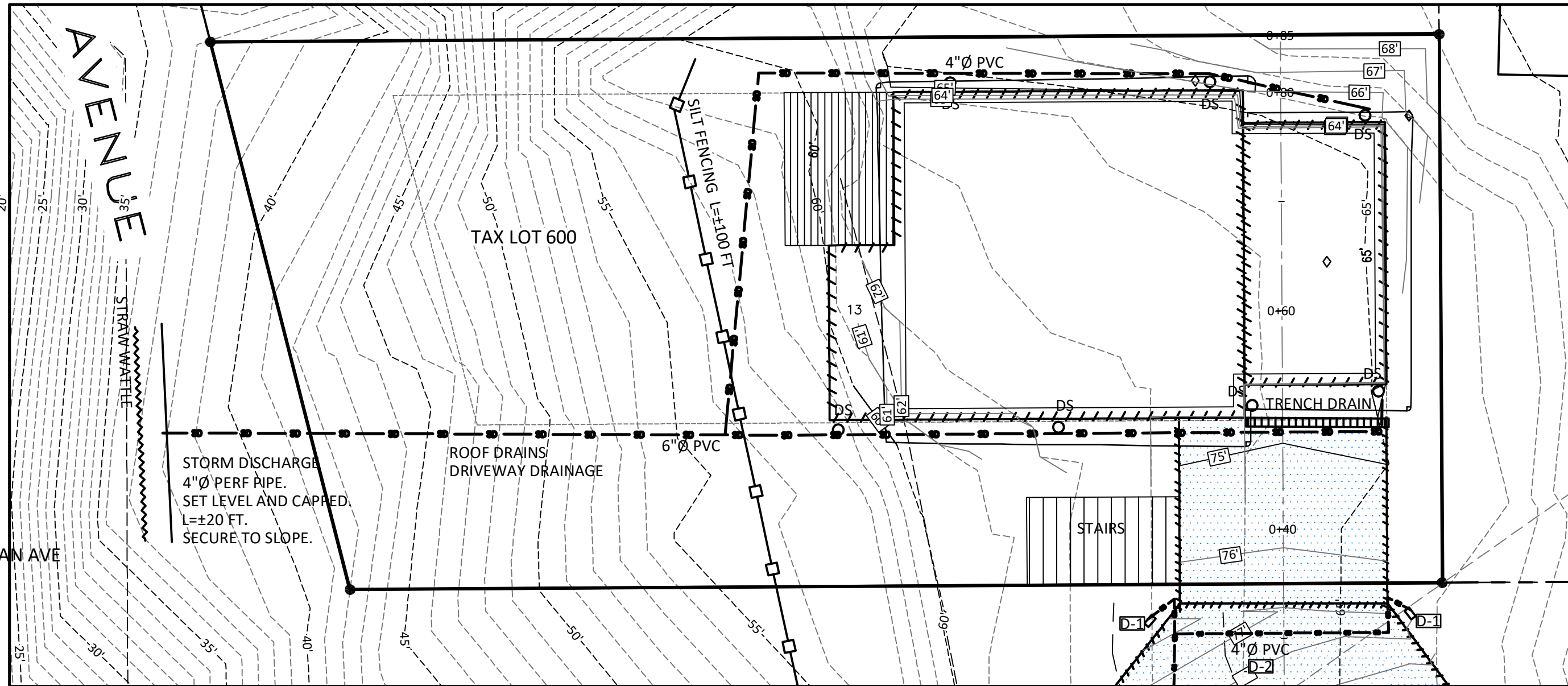
DRAINAGE NOTES

- SCUPPERS IN BRIDGE BARRIERS, AT EACH BENT. INSTALL COLLECTION AND DOWNSPOUT AT EACH BENT
- INSTALL PVC PIPE, AS SHOWN.
- INSTALL CONCRETE CATCH BASIN WITH 18" SUMP AND VERTICAL TEE OUTLET.
- INSTALL TEE AND PERFORATED PIPE. SET LEVEL AND SECURE. CAP BOTH ENDS.
- CONNECT UNDER DRAINS TO NEW NEW DRAIN SYSTEM.

UTILITY NOTES

- COORDINATE WITH GAS COMPANY AND INSTALL NEW LINE.
- COORDINATE WITH POWER COMPANY AND INSTALL NEW LINE.
- COORDINATE WITH PHONE & TV PROVIDERS TO INSTALL NEW LINES..





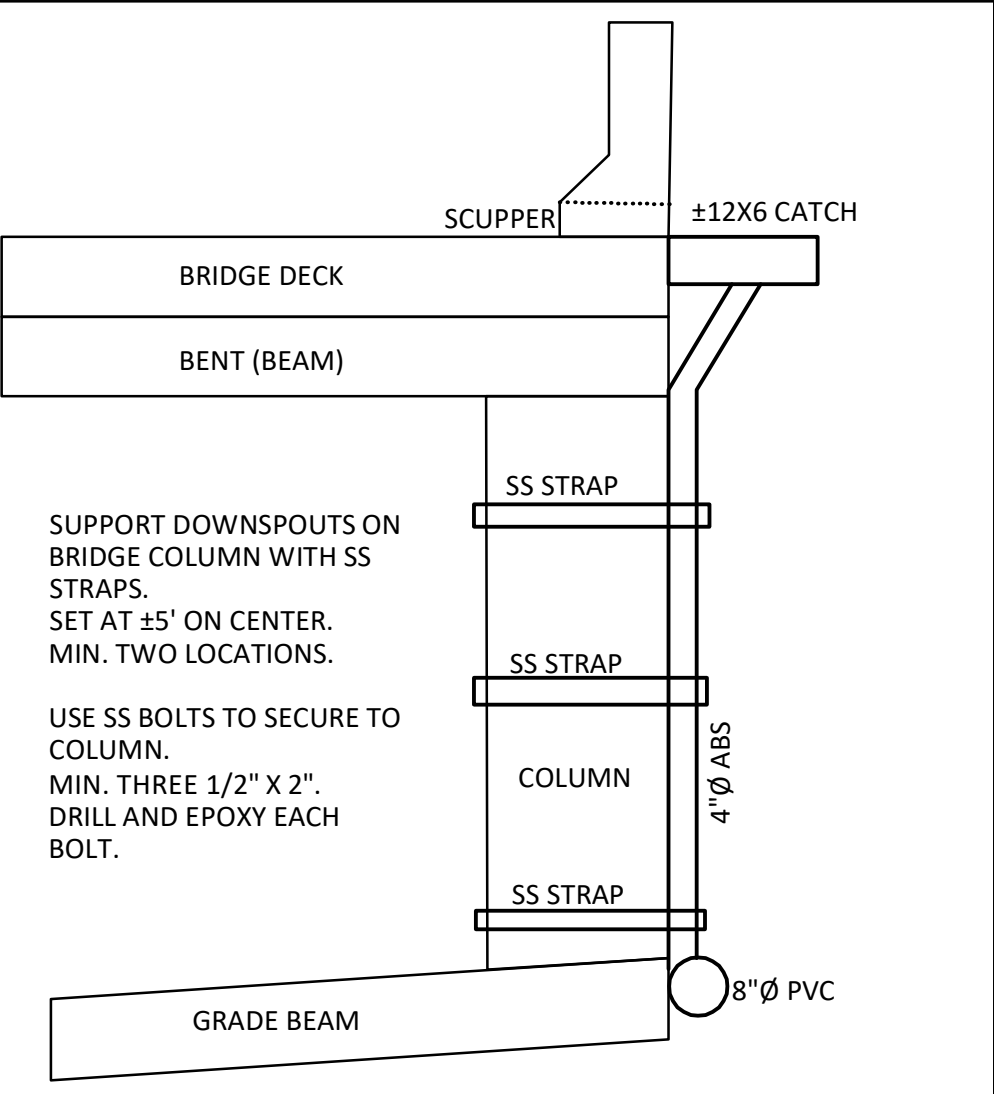
1
7 SURFACE DRAINAGE LAYOUT - PRIVATE
SCALE: 1"=10'

GRAPHIC SCALE



(IN FEET)
1 inch = 10 ft.

2
7 SUB-SURFACE DRAINAGE LAYOUT - PRIVATE
SCALE: 1"=10'



3
7 BRIDGE DOWNSPOUT DETAIL
NO SCALE

DRAINAGE NOTES

COLLECT STORMWATER RUN-OFF FROM ALL HARD SURFACES AND DISCHARGE ON SLOPE ABOVE BEACH USING DIFFUSION.

PUBLIC
CONNECT DRAINS AT SCUPPERS ON BRIDGE. USE DOWNSPOUTS CONNECTED TO BRIDGE PIERS. USE STAINLESS STRAPS TO CONNECT TO PIERS.

CONTINUE TO GROUND SURFACE. CONNECT TO MAIN PIPES OUTSIDE OF BRIDGE PIERS AS SHOWN AND CONVEY TO DISCHARGE LOCATION.

PRIVATE
DRIVEWAY - USE TRENCH TRENCH IN FRONT OF GARAGE. PIPE WATER TO SURFACE AND ROUTE TO WEST. CONNECT ROOF DOWNSPOUTS TO DRAIN PIPE AND EXTEND TO SLOPE. INSTALL AT EDGE OF HOUSE GRADE BEAMS.

DISCHARGE
DIFFUSE WATER ON SLOPE USING PERFORATED PIPE, SET LEVEL, CAPPED, AND SECURED ON SLOPE.

SUBSURFACE DRAINAGE

PUBLIC - HILLSIDE DRAINS
RE-ROUTE EXISTING 4"Ø ABS PIPE TO CONNECT TO DRAINAGE FROM BRIDGE, AS SHOWN.

PRIVATE
INSTALL PERFORATED FOUNDATION PIPE ON UPHILL SIDE OF ALL FOUNDATION WALLS AND BEAMS. INSTALL ADJACENT TO HOUSE GRADE BEAMS.

EXTEND TO DAYLIGHT WITH POSITIVE SLOPE. DO NOT CONNECT TO ROOF DRAINS.

GRAPHIC SCALE



(IN FEET)
1 inch = 10 ft.

4
7 DRAINAGE LAYOUT - PUBLIC
SCALE: 1"=10'

LEGEND

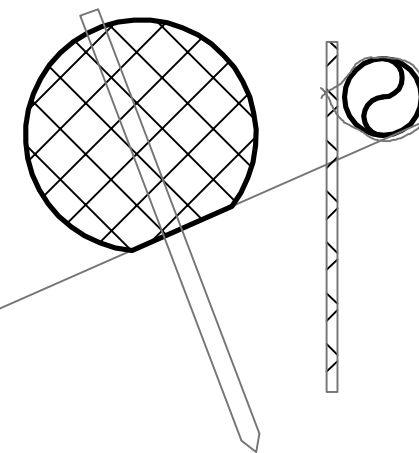
---	PROPERTY LINE
///	EXISTING ROADWAY
---	EXISTING PATH
---	PROPOSED ROADWAY
---	CLEARING AREA
---	CONSTRUCTION FENCING
---	SILT FENCING
---	STRAW WATTLE
---	EXISTING CONTOUR
---	FINAL/GRADING CONTOUR
---	WATER LINE
---	SEWER LINE
---	GAS LINE
---	CATV/PHONE/POWER LINE
---	STORM DRAIN LINE
---	EXISTING SUBSURFACE DRAINLINE
---	HOUSE

NOTES

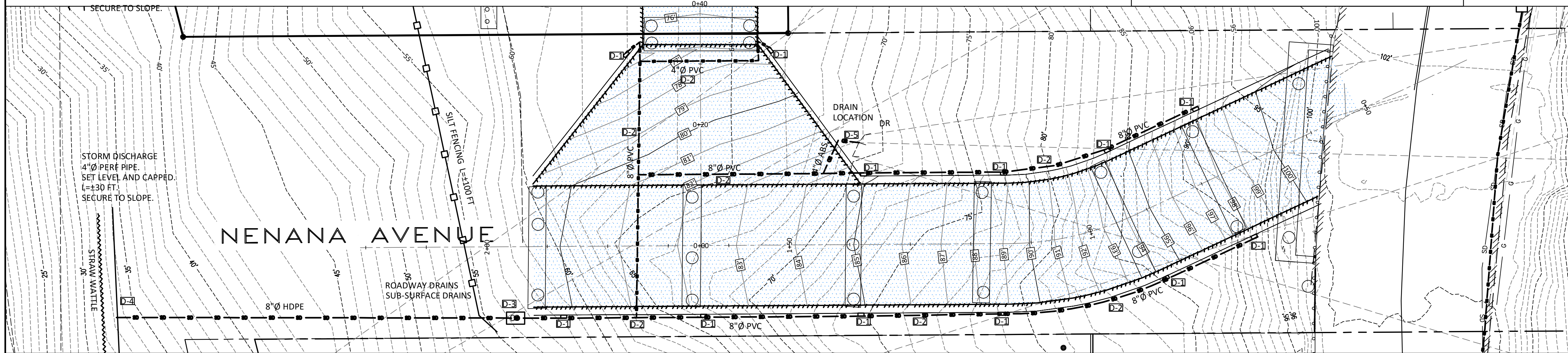
VEGETATION - CUT ALL VEGETATION TO GROUND LEVEL AT PIPE AND COIR LOG LOCATIONS. DO NOT REMOVE ROOTS.

PIPE - USE 4"Ø PERFORATED PIPE. CAP PIPE ENDS. INSTALL OUTFALL PIPE LEVEL, **NO SLOPE**. SECURE OUTFALL PIPE WITH WIRE TIED TO REBAR ON DOWNHILL SIDE AT 5' O.C.

COIR LOG - PLACE COIR LOG DOWNSLOPE OF OUTFALL PIPE. ENSURE NO GAPS UNDER LOGS. STAKE COIR LOG TO GROUND WITH 30" WOOD STAKES SET AT 5' O.C.



5
7 SURFACE DIFFUSION
NO SCALE



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STANLEY ROBERTS
TAX LOT 600 - NENANA AVENUE
DRAINAGE LAYOUT

CANNON BEACH/MAP 5N 10W 31

SHEET

C7

OF 13



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STANLEY ROBERTS
TAX LOT 600 - NENANA AVENUE
SEWER PROFILE & PUMP DETAILS

CANNON BEACH/MAP 5N 10W 31

SHEET

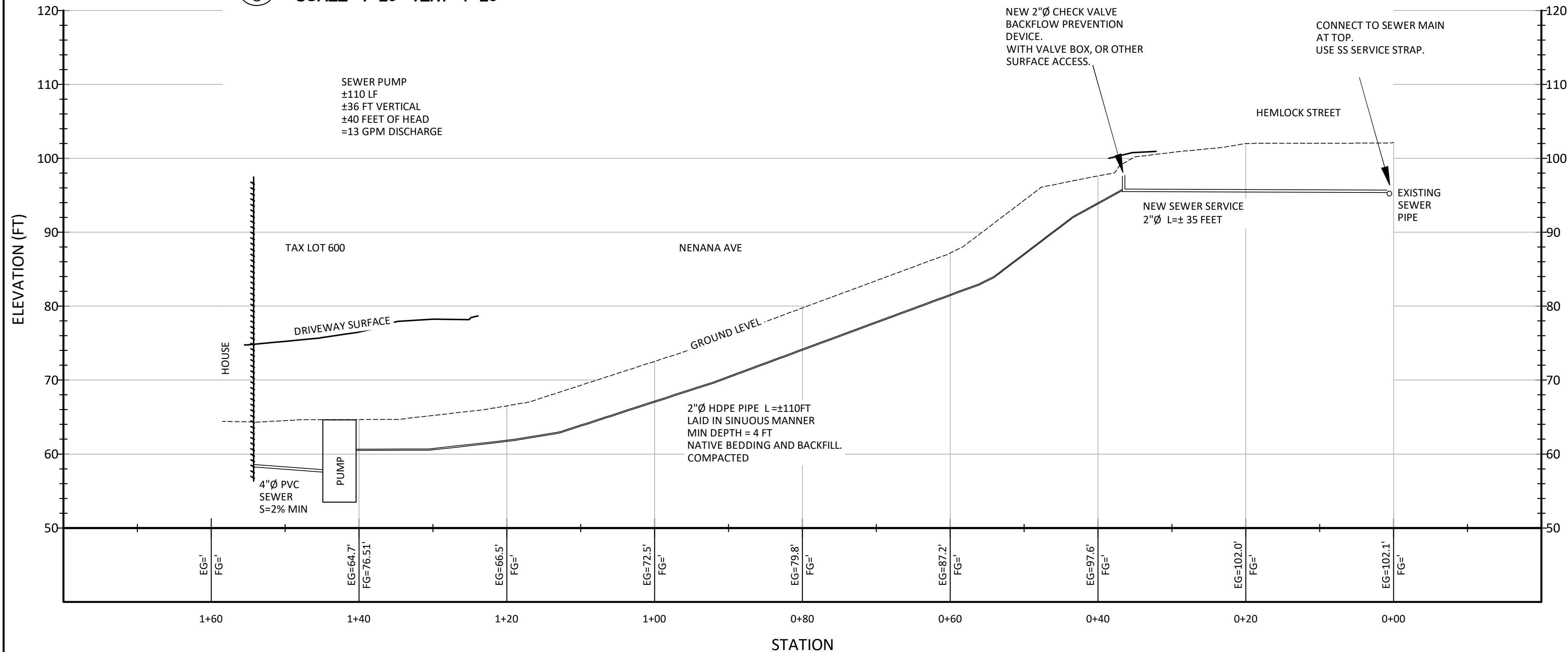
C8

OF 13

1
8

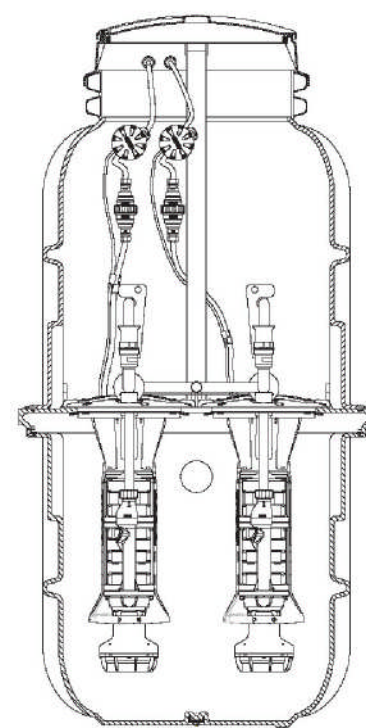
SEWER SERVICE PROFILE

SCALE: 1"=20' VERT: 1"=20'



E/ONE
EXTREME
SERIES

DH152/DR152



Patent Numbers: 5,752,315
5,562,254 5,439,180

* Discharge data includes loss
through check valve, which is
minimal.

NA0052P01

General Features

The DH152 or DR152 grinder pump station is a complete unit that includes: two grinder pumps with check valves, HDPE (high density polyethylene) tank and controls. The DH152 or DR152 is packaged into a single complete unit, ready for installation.

The DH152 is the "hardwired," or "wired," model where a cable connects the motor controls to the level controls through watertight penetrations.

The DR152 is the "radio frequency identification" (RFID), or "wireless," model that uses wireless technology to communicate between the level controls and the motor controls.

All solids are ground into fine particles, allowing them to pass easily through the pump, check valve and small-diameter pipelines. Even objects that are not normally found in sewage, such as plastic, rubber, fiber, wood, etc., are ground into fine particles.

The 1 1/4-inch discharge connection is adaptable to any piping materials, thereby allowing it to meet local code requirements.

The grinder pump is automatically activated and runs infrequently for very short periods. The annual energy consumption is typically that of a 40-watt light bulb.

Units are available for indoor and outdoor installations. Outdoor units are designed to accommodate a wide range of burial depths.

Operational Information

Motor

1 hp, 1,725 rpm, high torque, capacitor start, thermally protected, 120/240V, 60 Hz, 1 phase

Inlet Connections

4-inch inlet grommet standard for DWV pipe. Other inlet configurations available from the factory.



Discharge*
15 gpm at 0 psig (per pump)
11 gpm at 40 psig (per pump)
7.8 gpm at 80 psig (per pump)

Control Panel

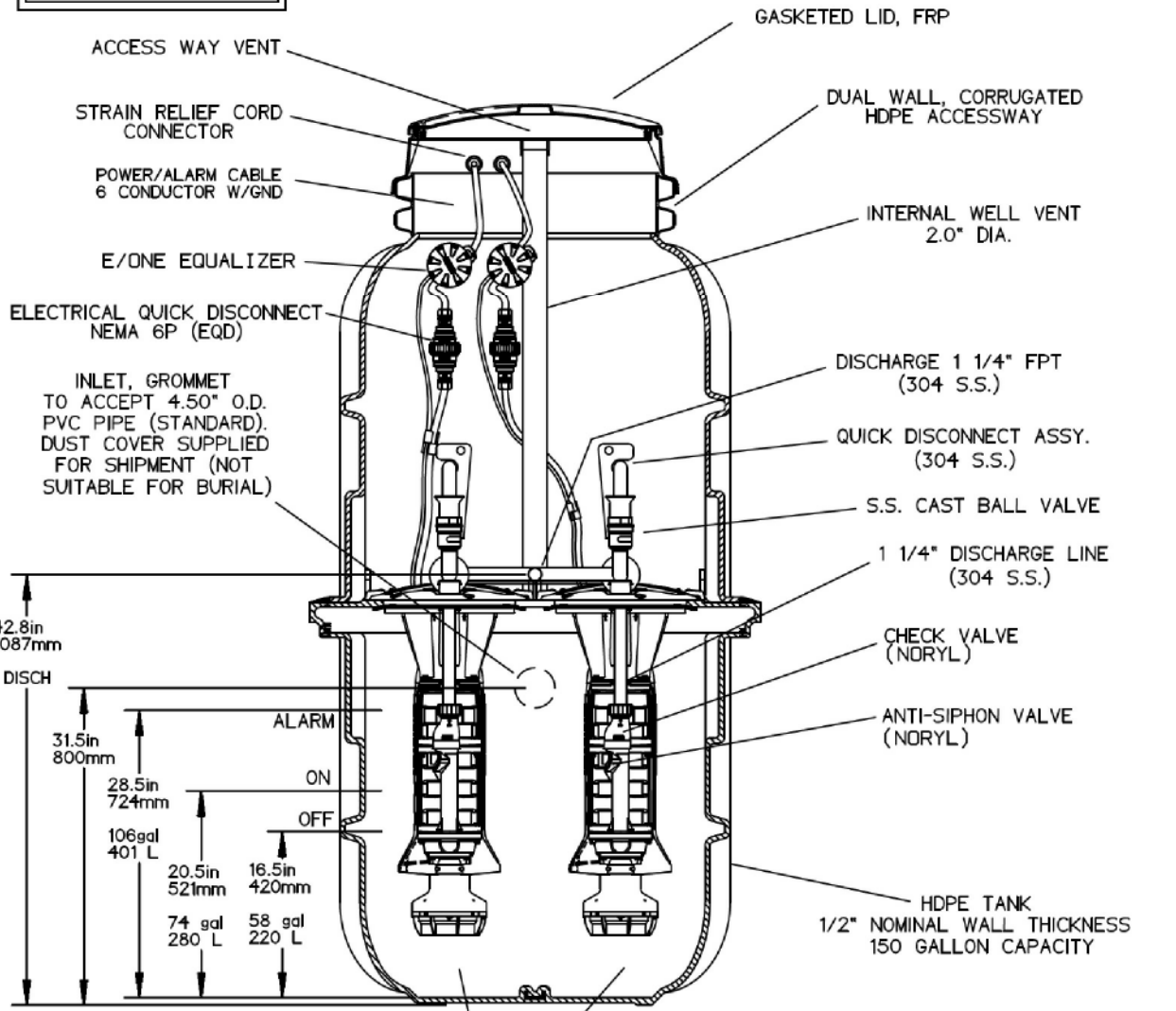
This station is designed to use the Alternating Control Panel, MOD T260.

Overload Capacity

The maximum pressure that the pump can generate is limited by the motor characteristics. The motor generates a pressure well below the rating of the piping and appurtenances. The automatic reset feature does not require manual operation following overload.

OPTIONS : ☐ DH152 (HARD WIRED LEVEL CONTROLS)
☐ DR152 (WIRELESS LEVEL CONTROLS)

FIELD JOINT REQUIRED FOR MODELS
DH152-159 / DR152-129
DH152-160 / DR152-160



SEMI-POSITIVE DISPLACEMENT TYPE PUMP
EACH DIRECTLY DRIVEN BY A 1 HP MOTOR

CONCRETE BALLAST MAY BE REQUIRED
SEE INSTALLATION INSTRUCTIONS
FOR DETAILS



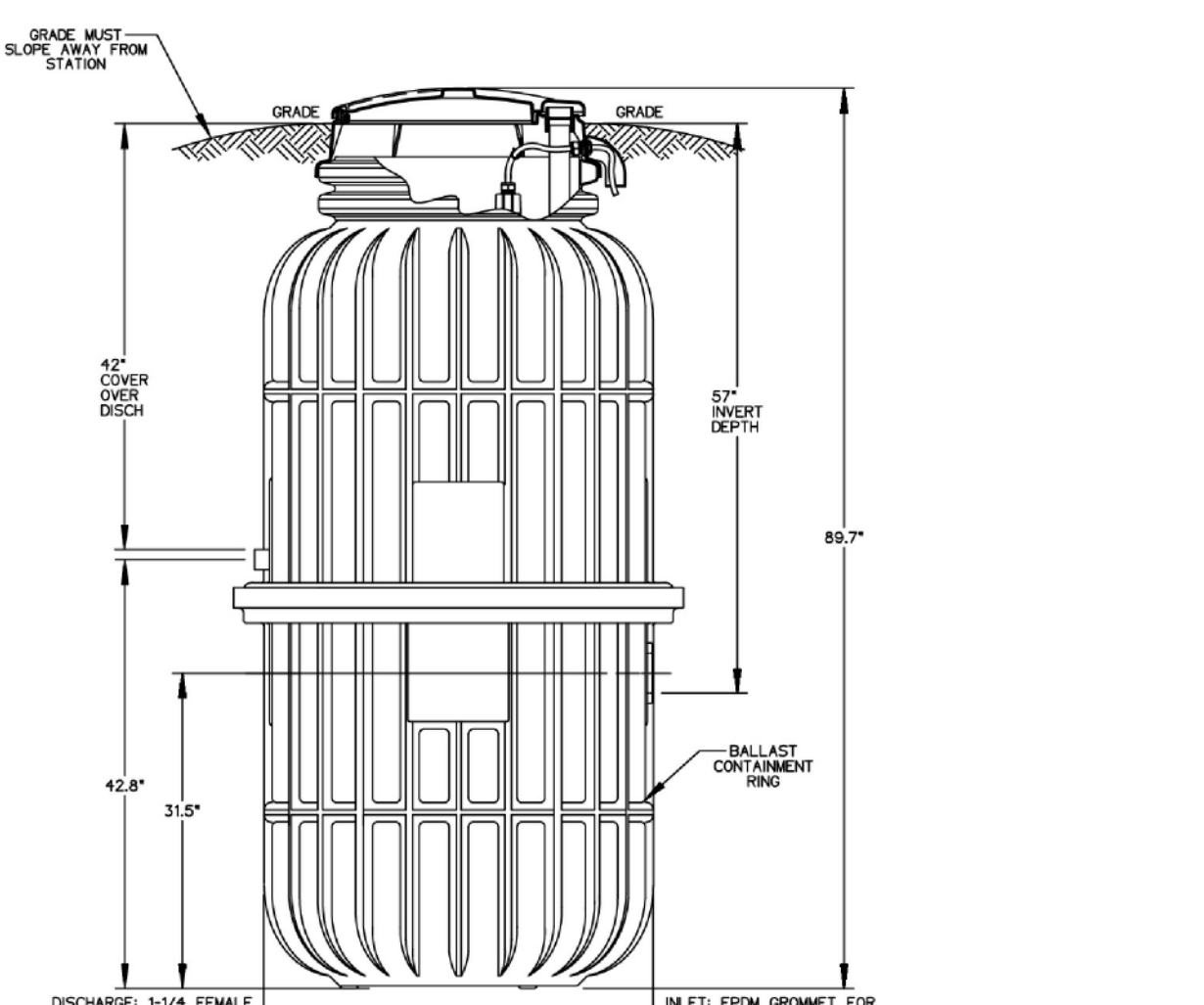
AD CH 04/27/09 B
DR BY CHK'D DATE ISSUE SCALE

eone
SEWER SYSTEMS

MODEL DH152 / DR152
DETAIL SHEET

NA0052P02

OPTIONS : ☐ DH152 -93 (HARD WIRED LEVEL CONTROLS)
☐ DR152 -93 (WIRELESS LEVEL CONTROLS)



CONCRETE BALLAST MAY BE REQUIRED
SEE INSTALLATION INSTRUCTIONS
FOR DETAILS



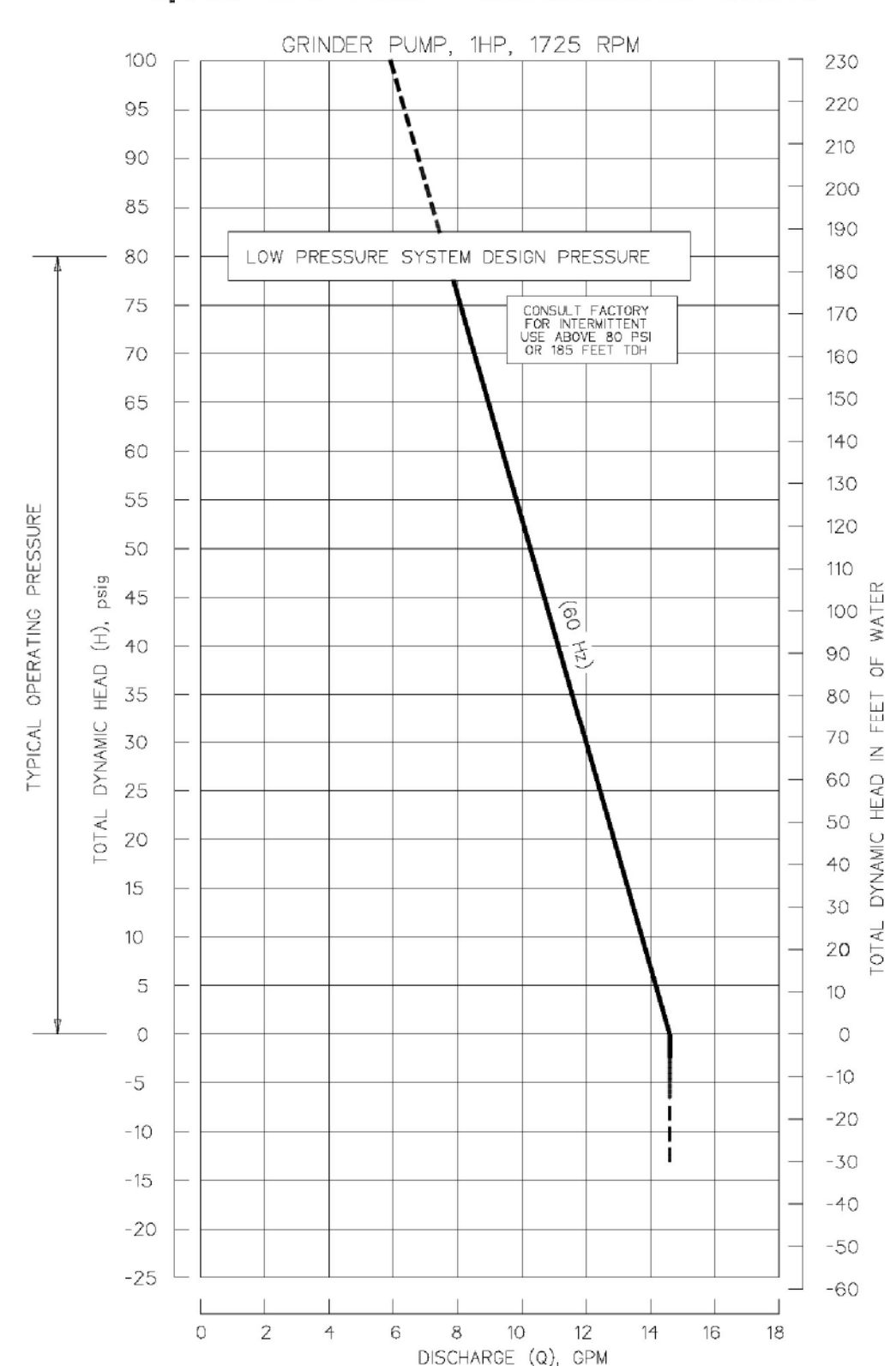
AD CH 7/13/07 A 1/16
DR BY CHK'D DATE ISSUE SCALE

eone
SEWER SYSTEMS

MODEL DH152-93 / DR152-93

NA0052P04

E/ONE SPD PUMP PERFORMANCE CURVE



ESD 08-0022 REV. 2, 6/08



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STANLEY ROBERTS
TAX LOT 600 - NENANA AVENUE
NENANA AVE PROFILES

CANNON BEACH/MAP 5N 10W 31

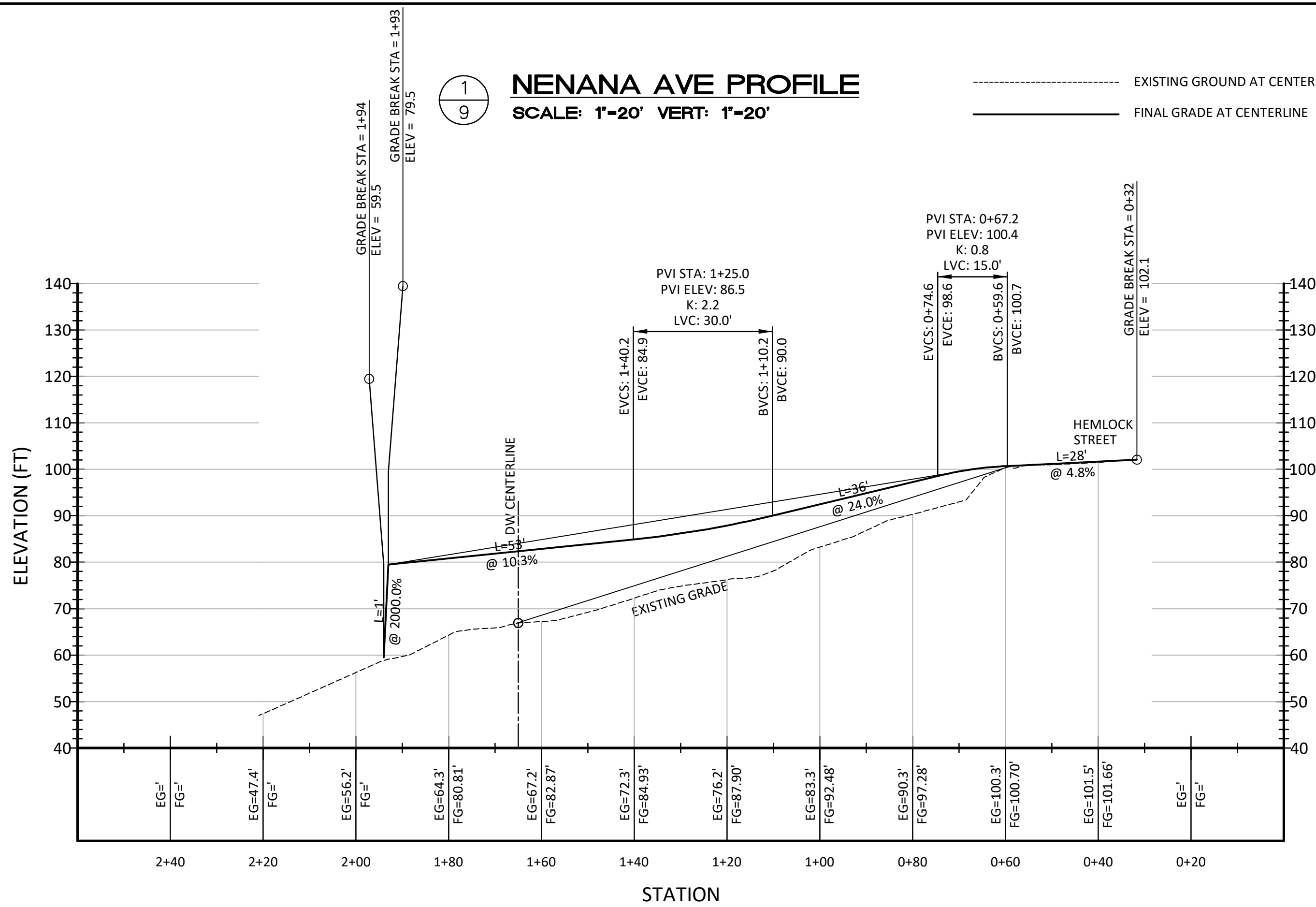
SHEET

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OF 13

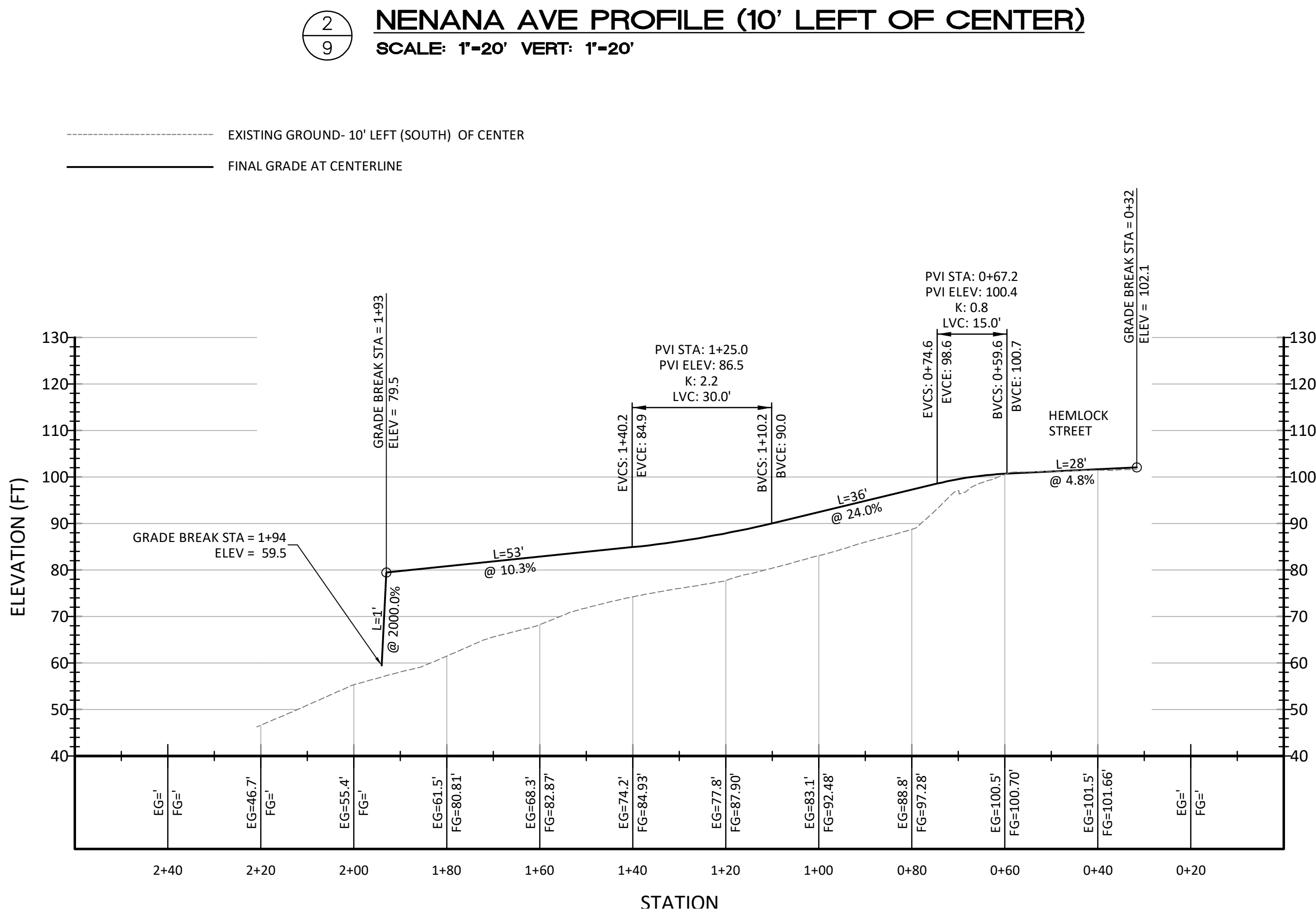
NENANA AVE PROFILE

SCALE: 1"=20' VERT: 1"=20'



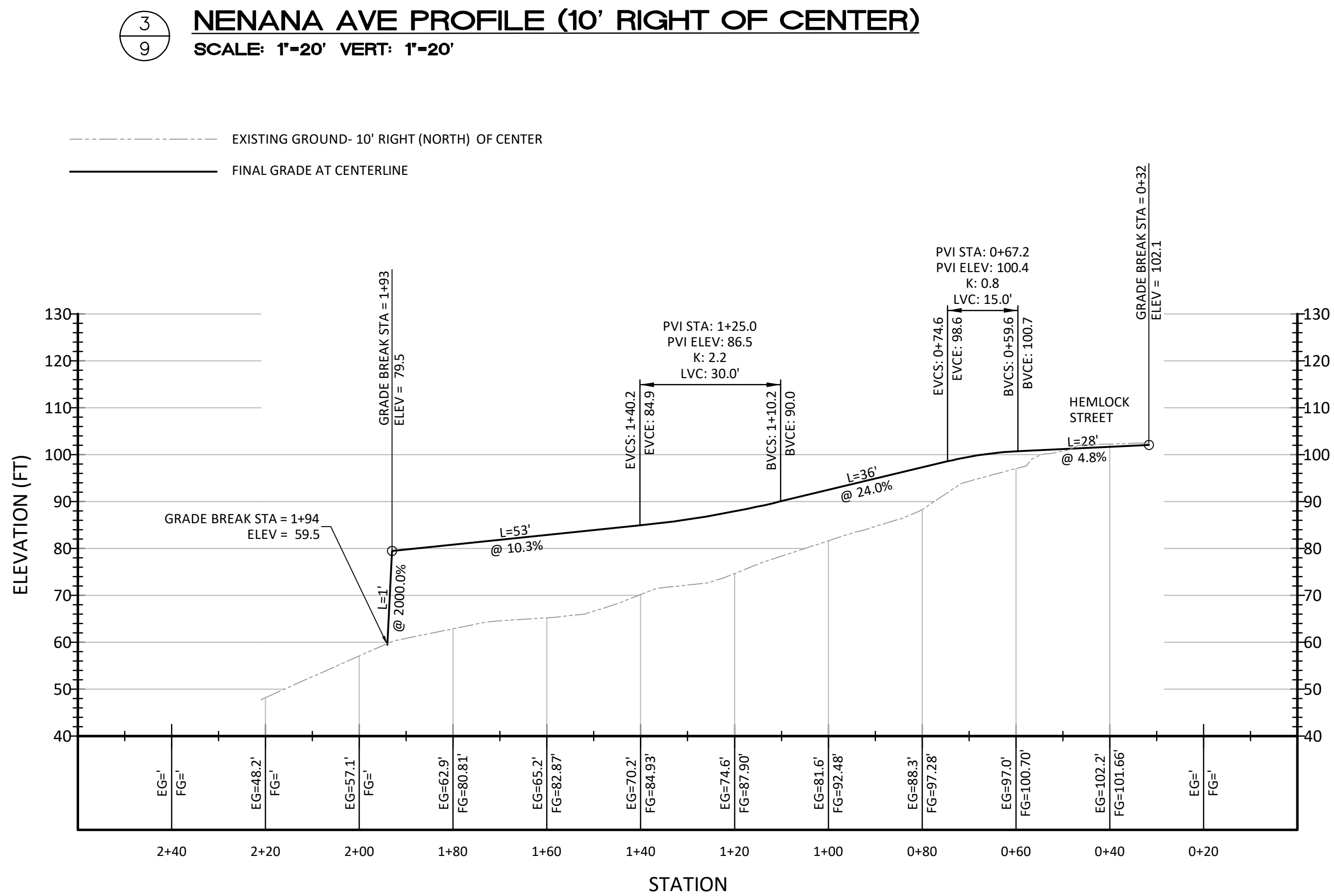
NENANA AVE PROFILE (10' LEFT OF CENTER)

SCALE: 1"=20' VERT: 1"=20'



NENANA AVE PROFILE (10' RIGHT OF CENTER)

SCALE: 1"=20' VERT: 1"=20'





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DIVEWAY PROFILE - ROADWAY SECTIONS

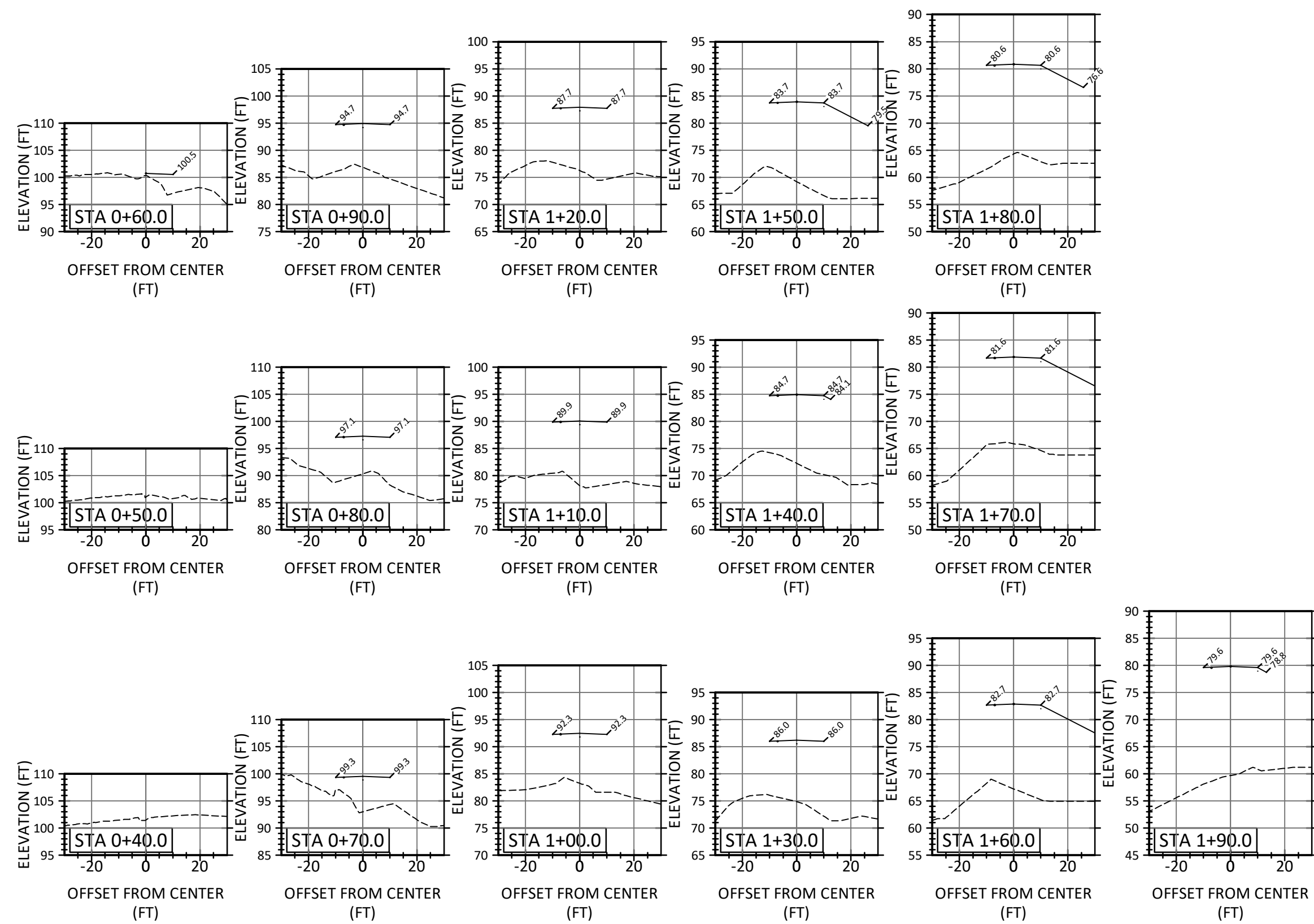
CANNON BEACH/ MAP 5N 10W 31

SHEET

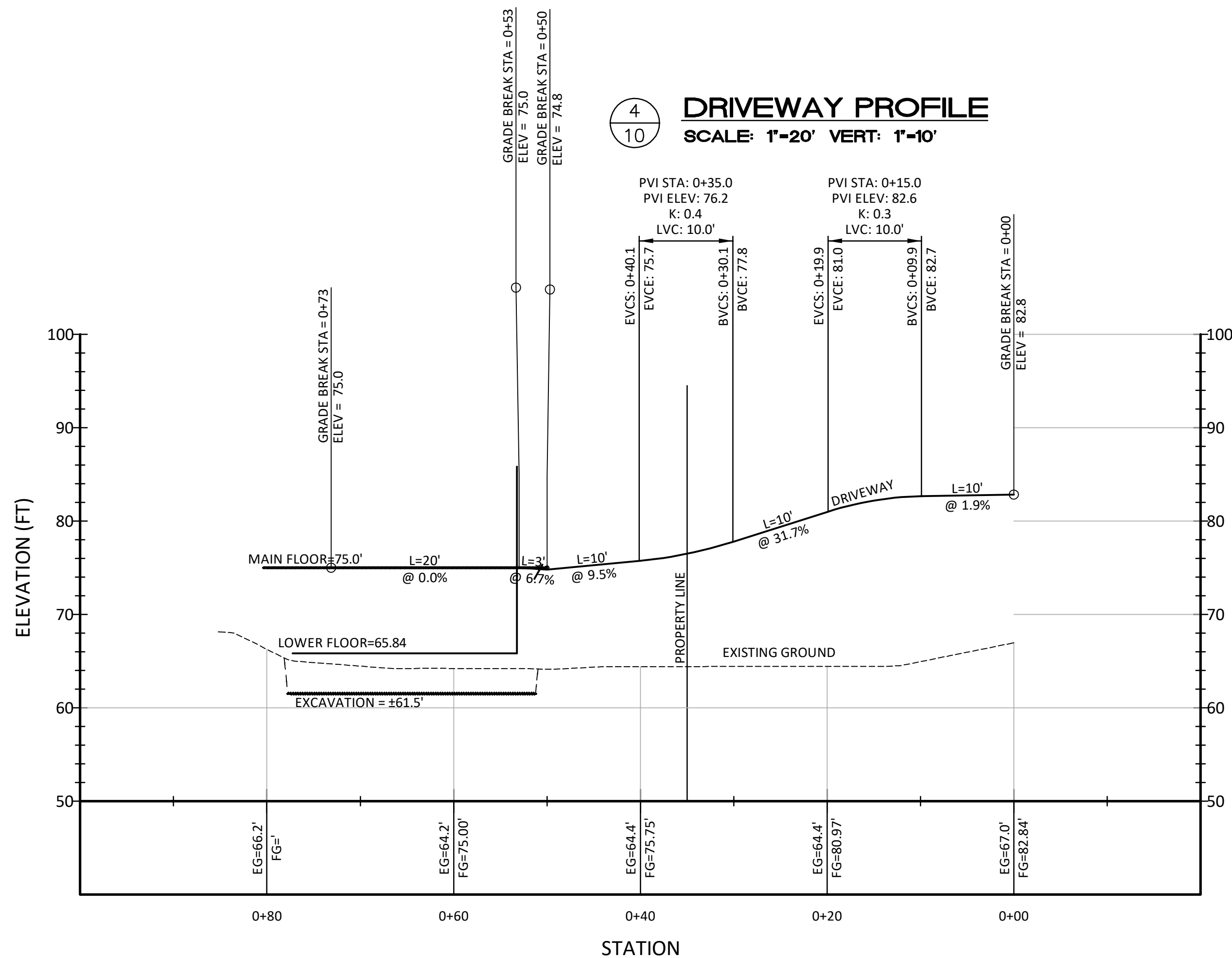
C10

OF 13

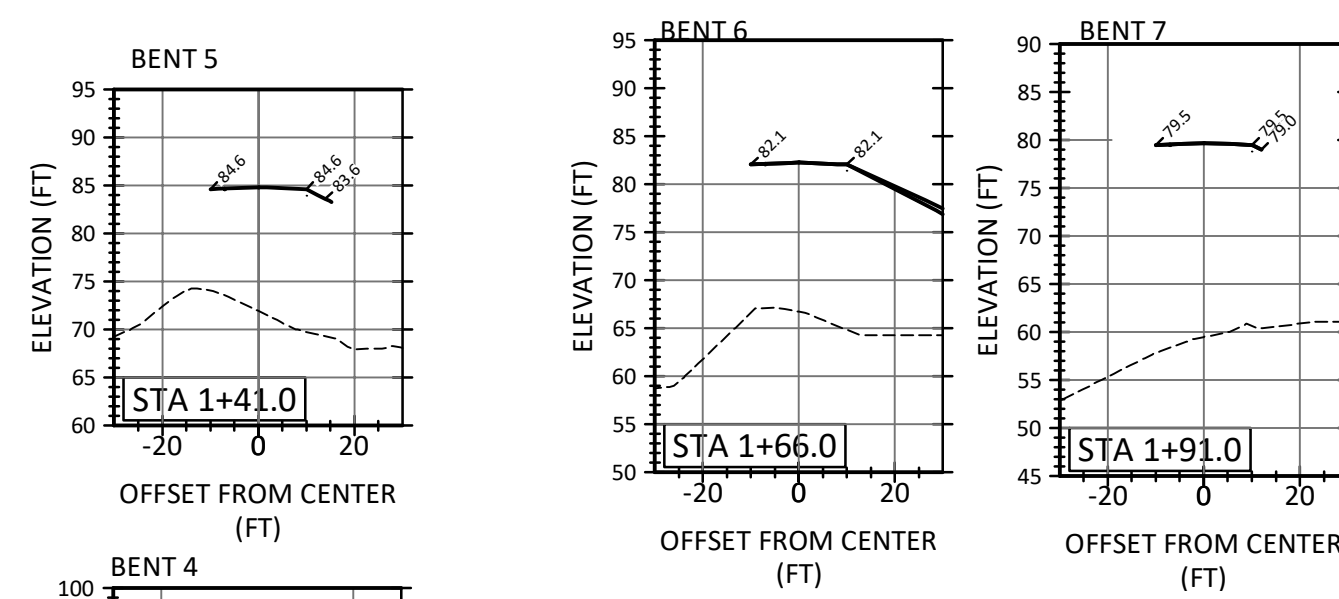
1
10 **NENANA SECTIONS**
SCALE: 1"=40' VERT: 1"=20'



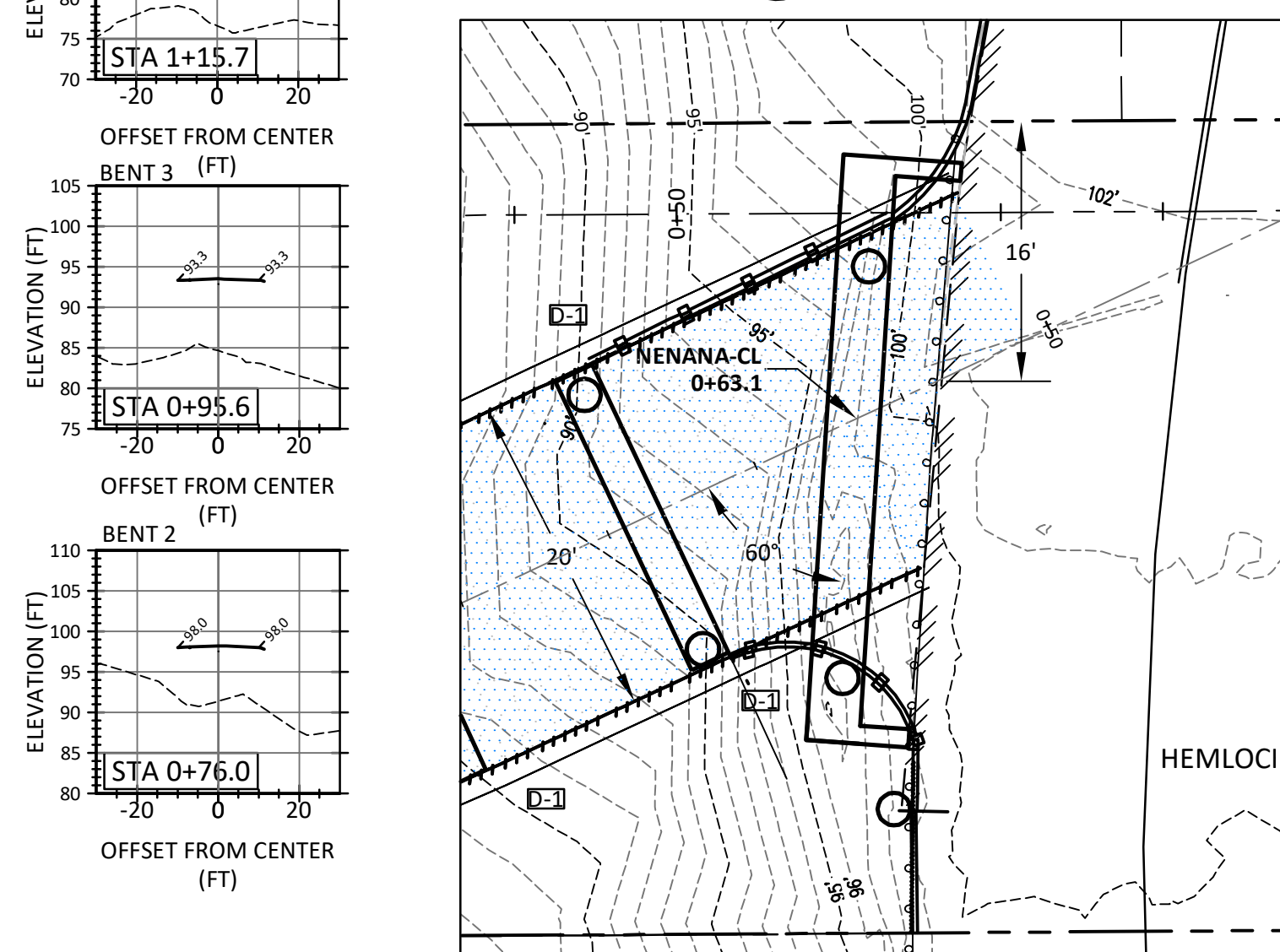
4
10 **DRIVEWAY PROFILE**
SCALE: 1"=20' VERT: 1"=10'



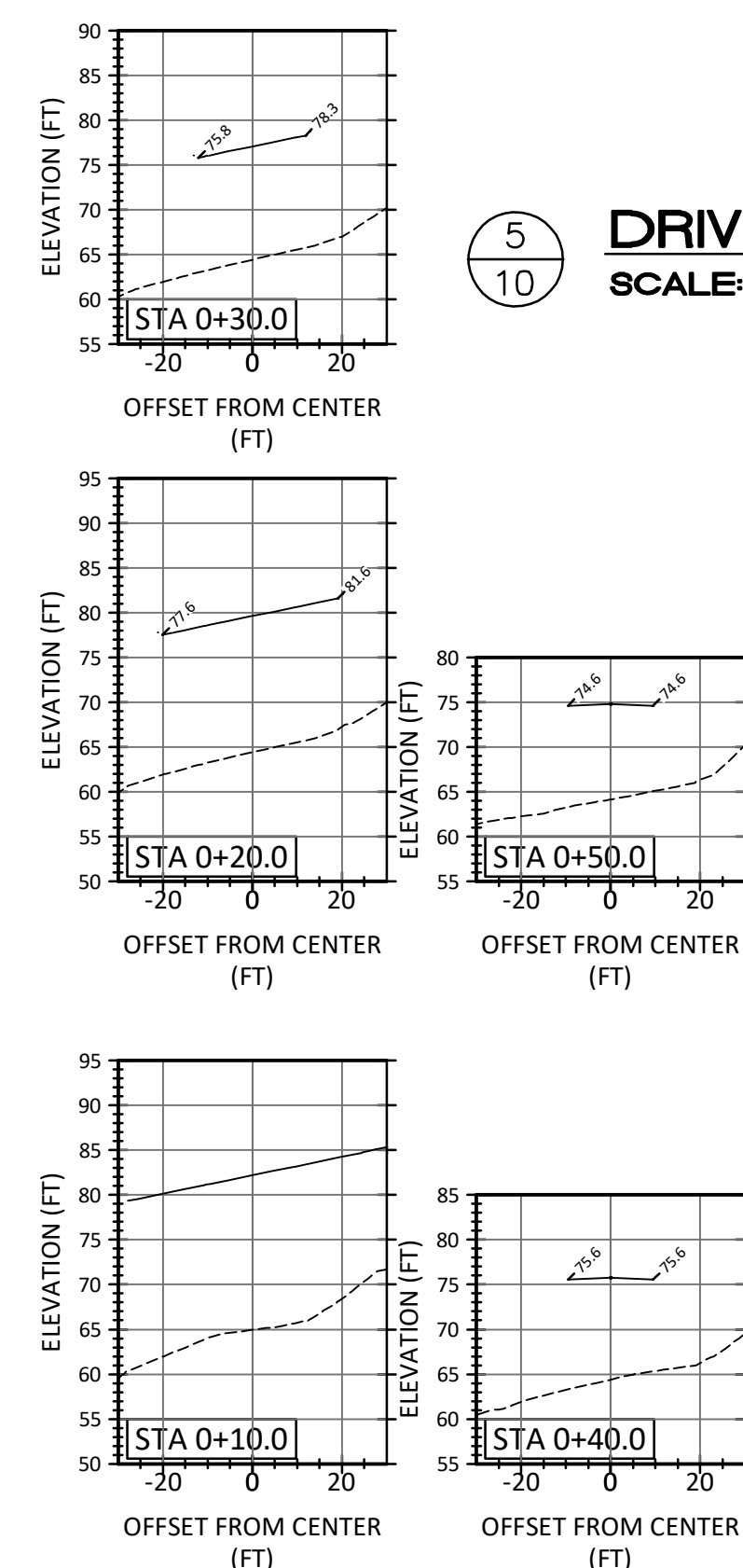
2
10 **NENANA BENT SECTIONS**
SCALE: 1"=40' VERT: 1"=20'



3
10 **HEMLOCK/NENANA**
SCALE: 1"=10'



5
10 **DRIVEWAY SECTIONS**
SCALE: 1"=40' VERT: 1"=20'





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STANLEY ROBERTS
TAX LOT 600 - NENANA AVENUE
ELEVATION CHANGE

CANNON BEACH/MAP 5N 10W 31

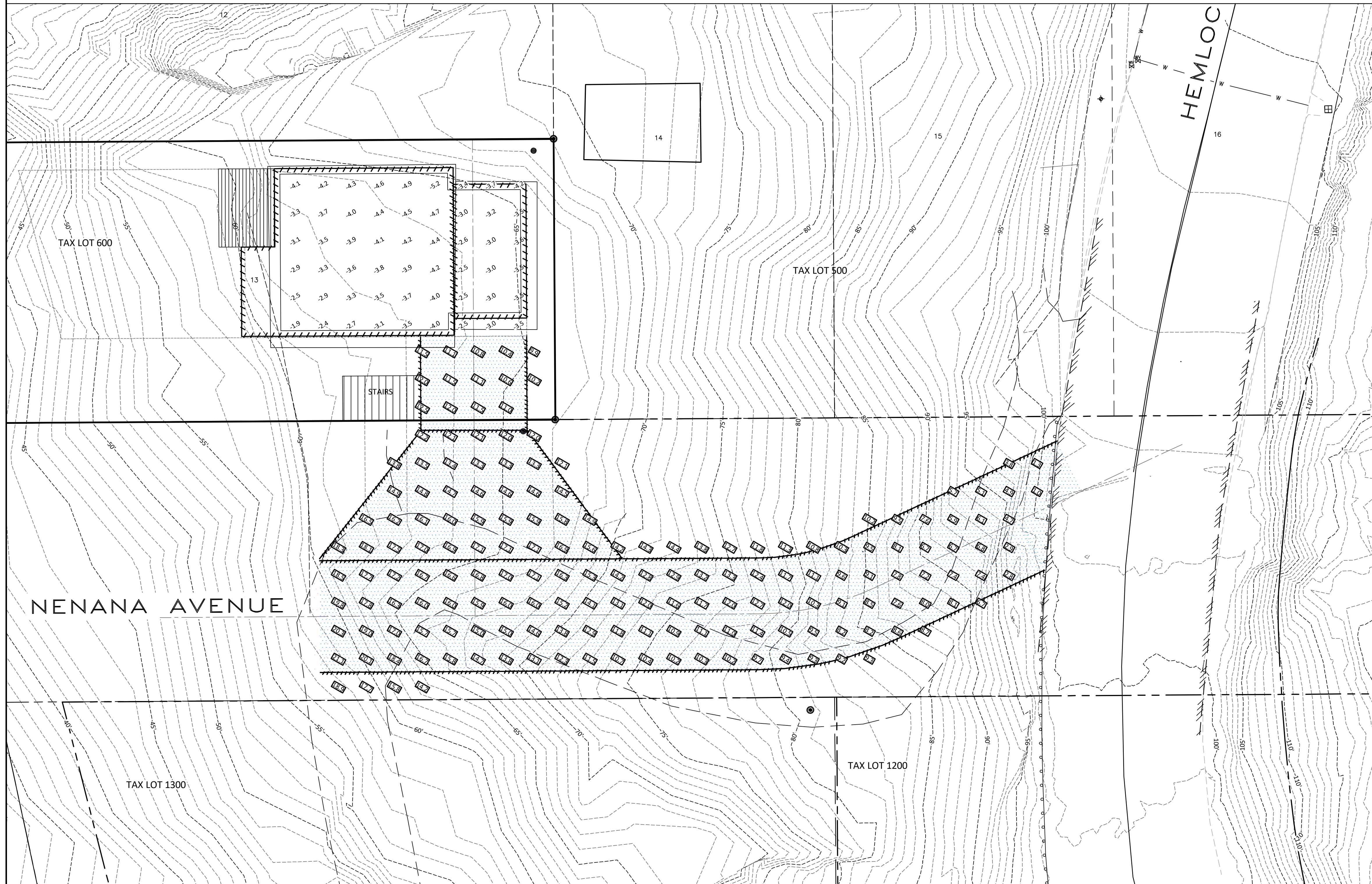
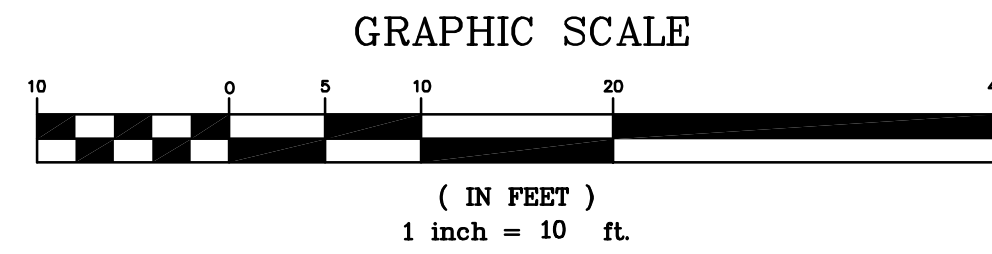
SHEET

C11

OF 13

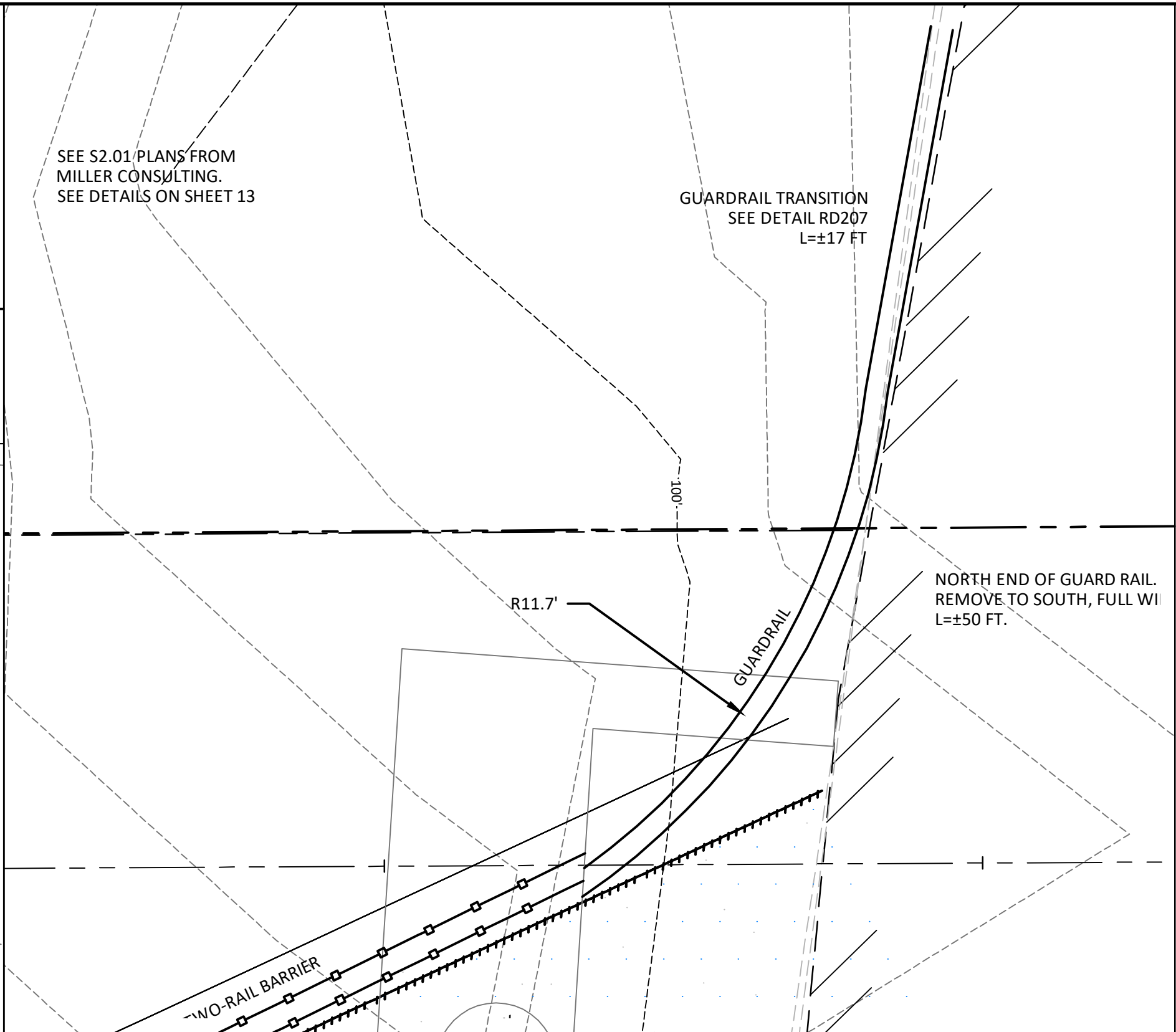
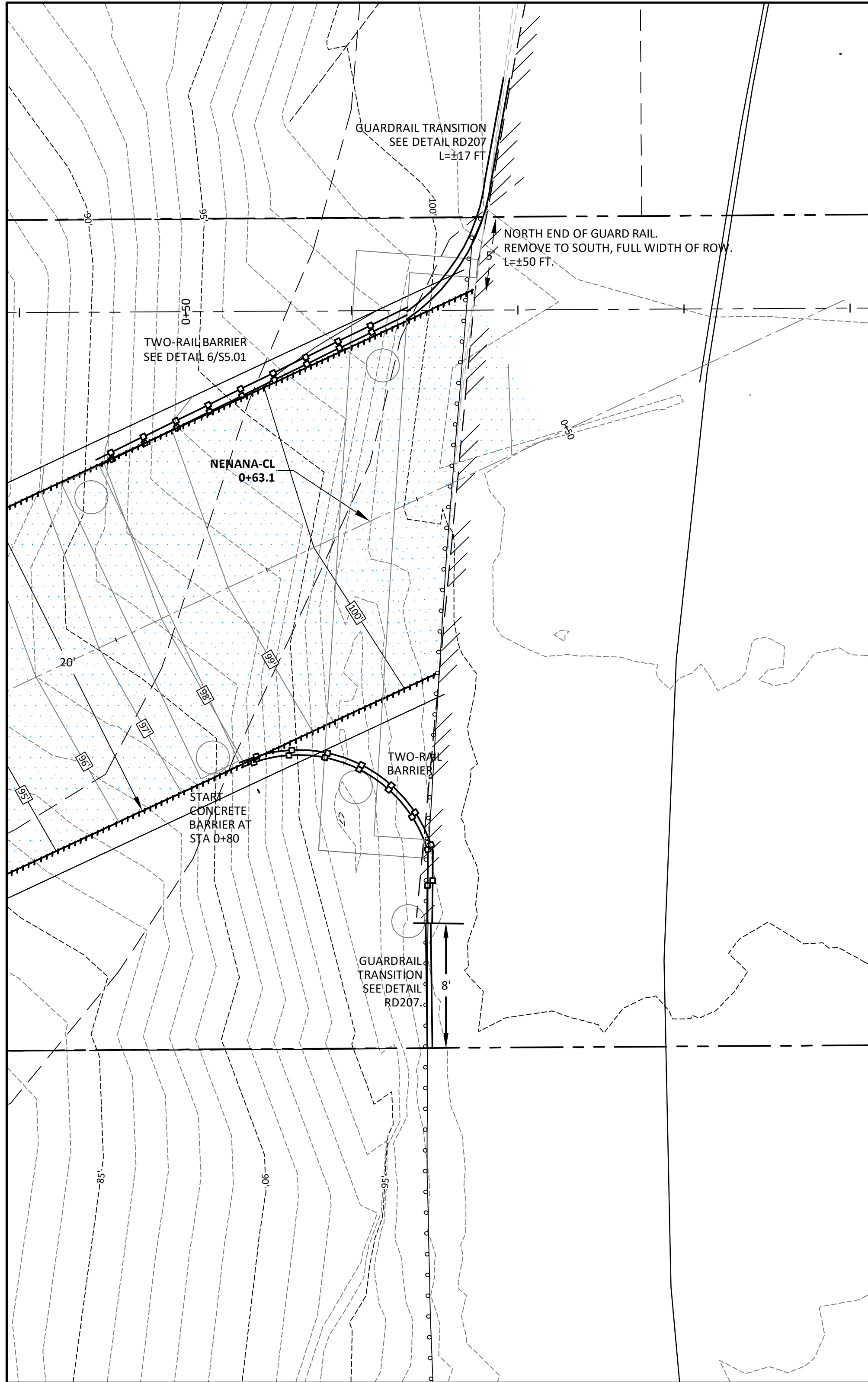
1
11
ELEVATION CHANGE
SCALE: 1"=10'

PROPOSED ELEVATION CHANGE FROM
EXISTING GRADE.
-RISE TO BRIDGE DECK
-CUT FOR HOUSE EXCAVATION

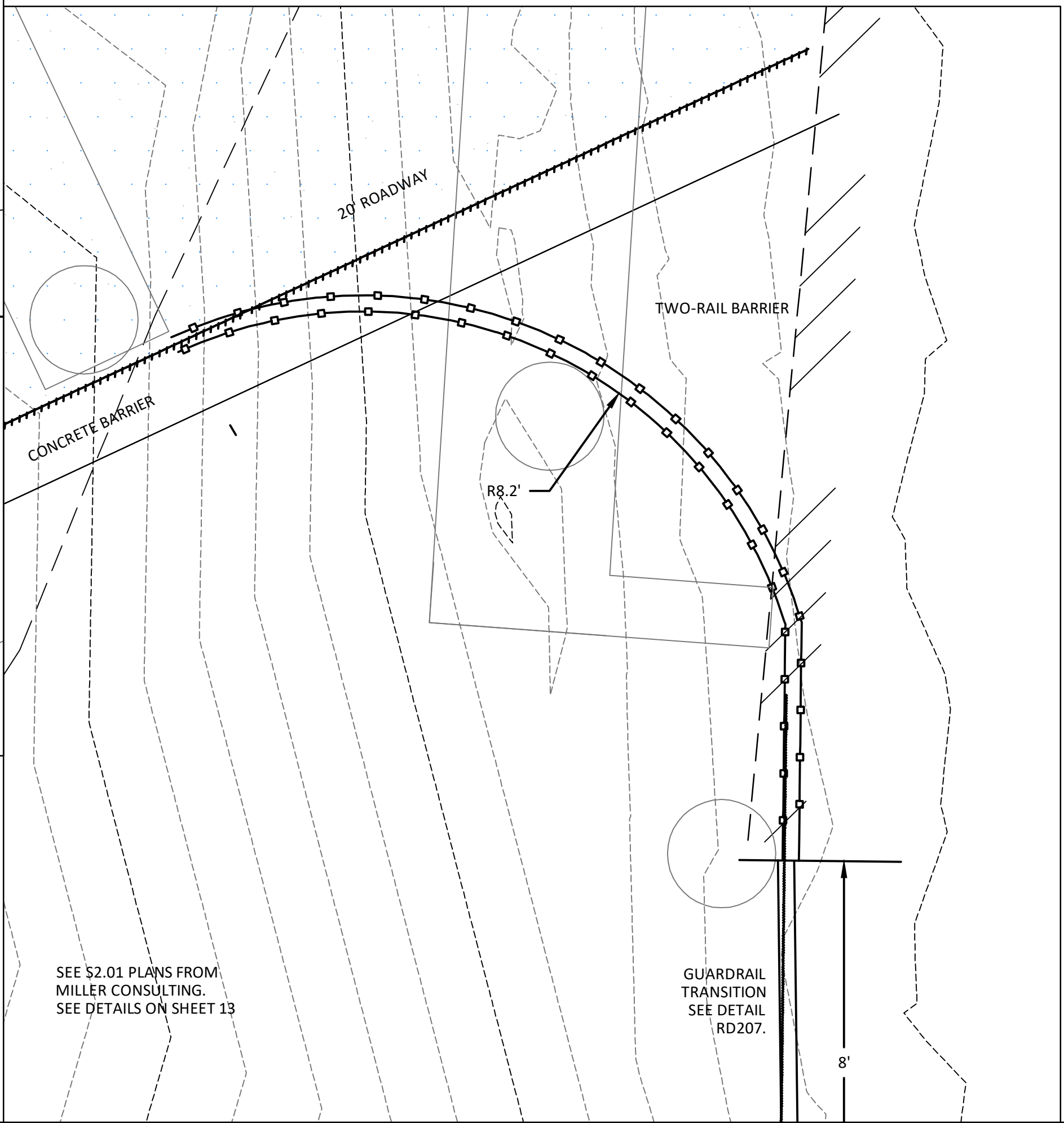


LEGEND

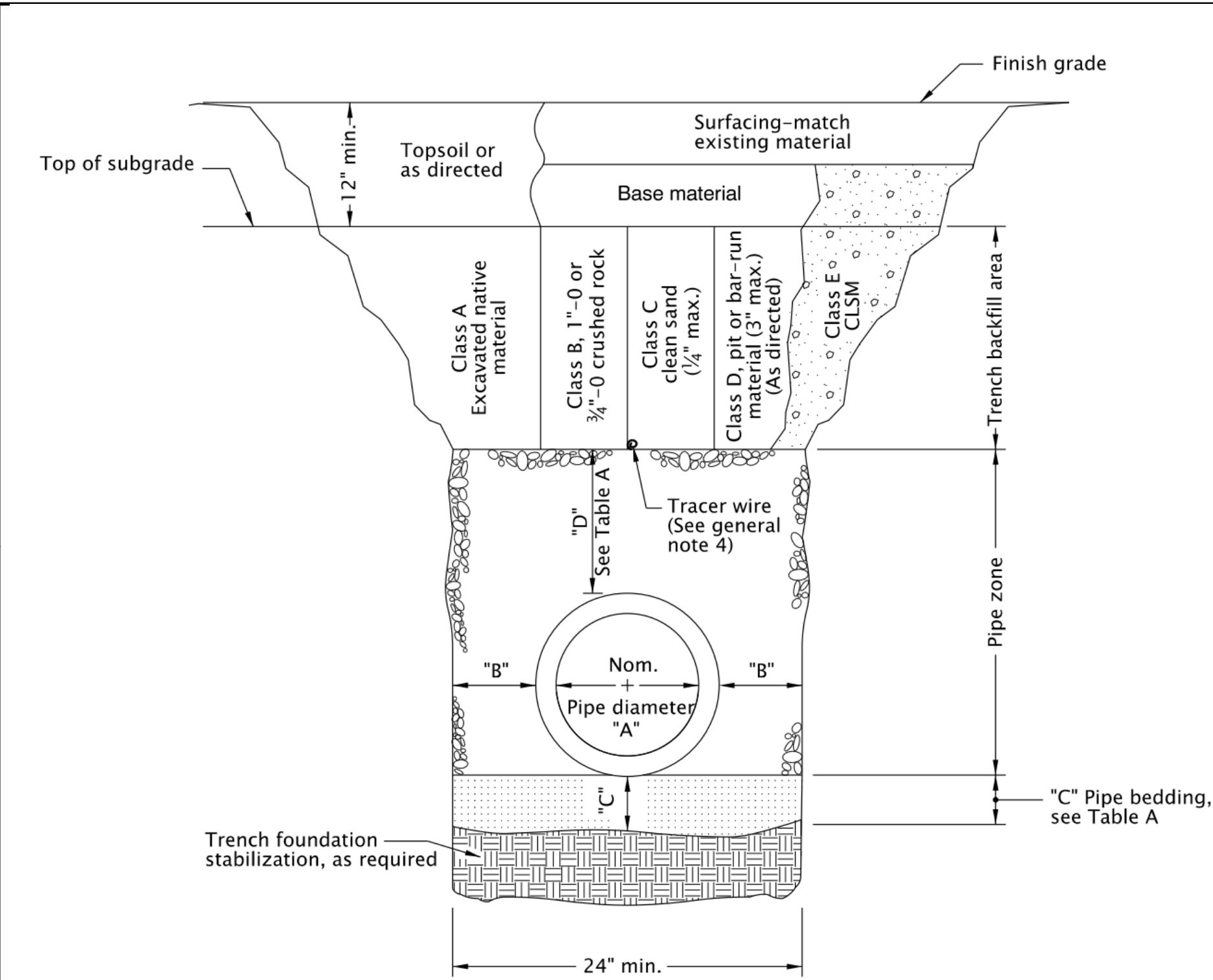
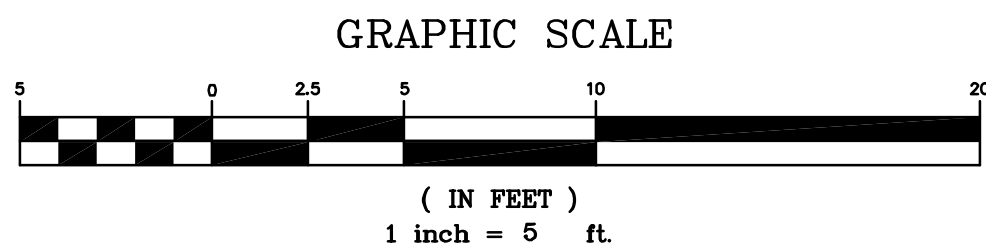
- PROPERTY LINE
- EXISTING ROADWAY
- EXISTING PATH
- PROPOSED ROADWAY
- CLEARING AREA
- CONSTRUCTION FENCING
- SILT FENCING
- STRAW WATTLE
- EXISTING CONTOUR
- FINAL/GRADING CONTOUR
- WATER LINE
- SEWER LINE
- GAS LINE
- CATV/PHONE/POWER LINE
- STORM DRAIN LINE
- EXISTING SUBSURFACE DRAINLINE
- HOUSE
- ROAD SIGNS



2
12 **BARRIER CONNECTIONS**
SCALE: 1"=2'

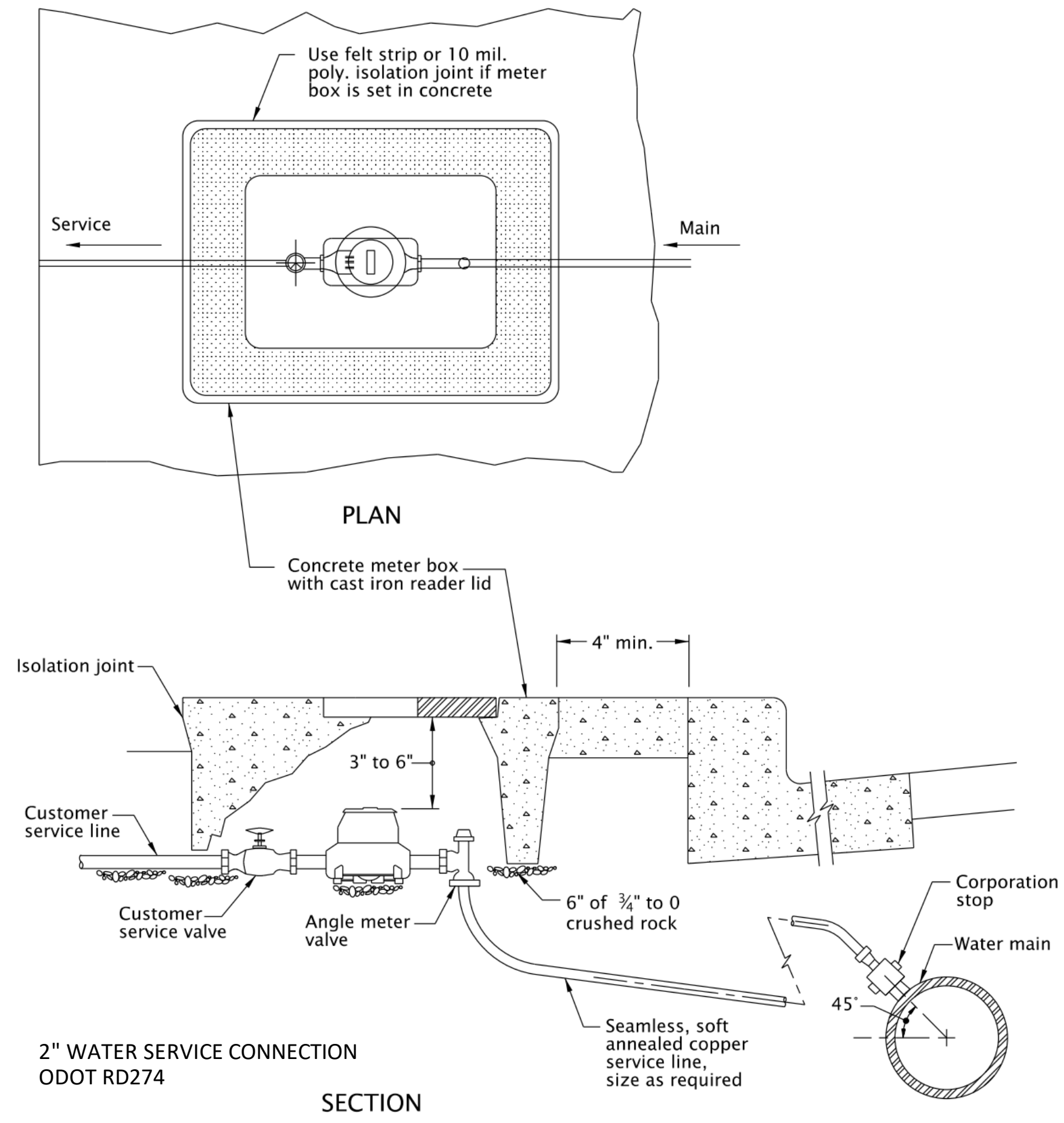


1
12 **NENANA INTERSECTION**
SCALE: 1"=5'



TRENCH BACKFILL/BEDDING
ODOT RD300

USED LOW DENSITY CONCRETE IN HEMLOCK STREET RIGHT-OF-WAY.
USE NATIVE BEDDING AND BACKFILL IN NENANA AVENUE RIGHT-OF-WAY.



2" WATER SERVICE CONNECTION
ODOT RD274



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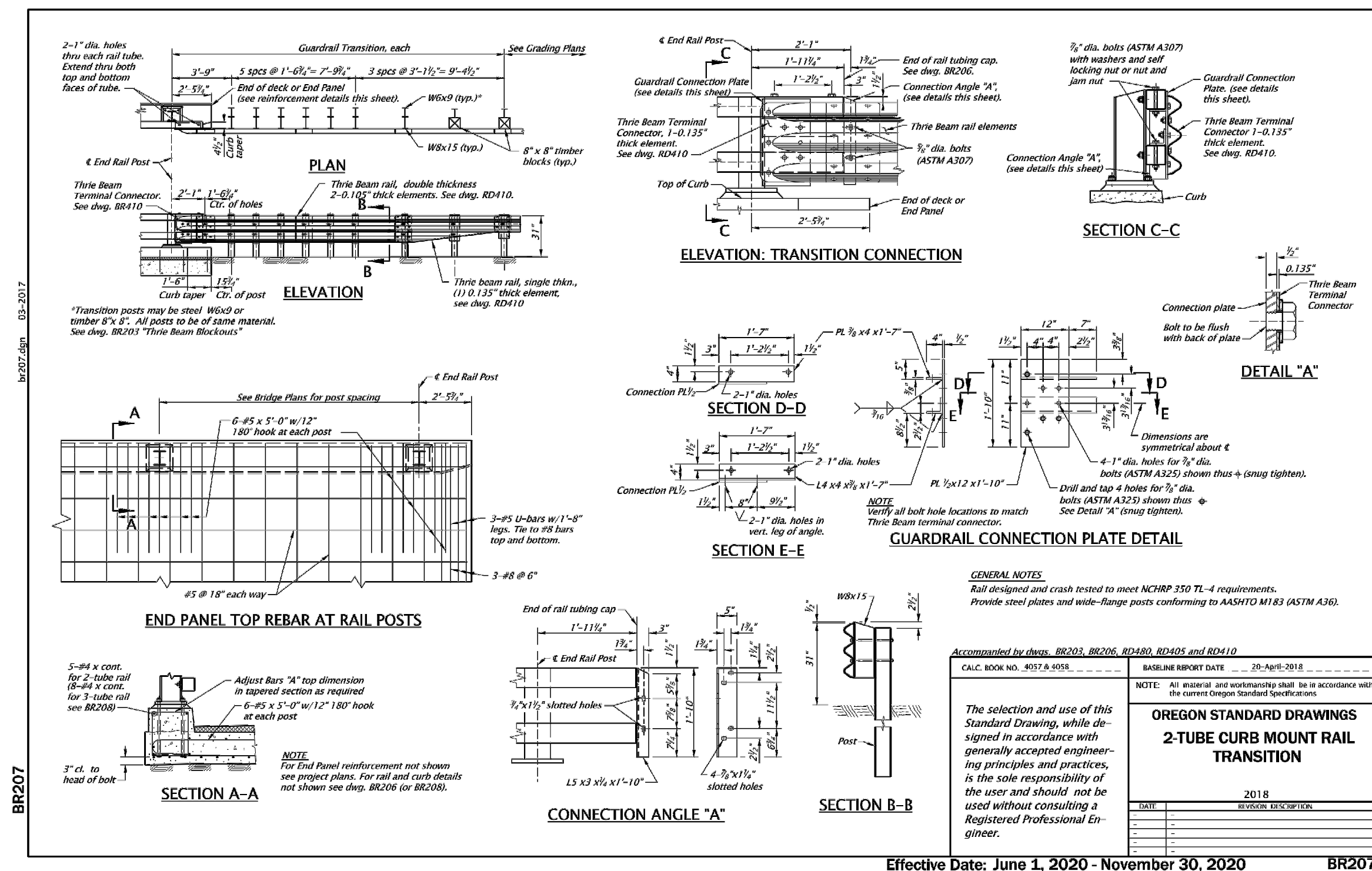
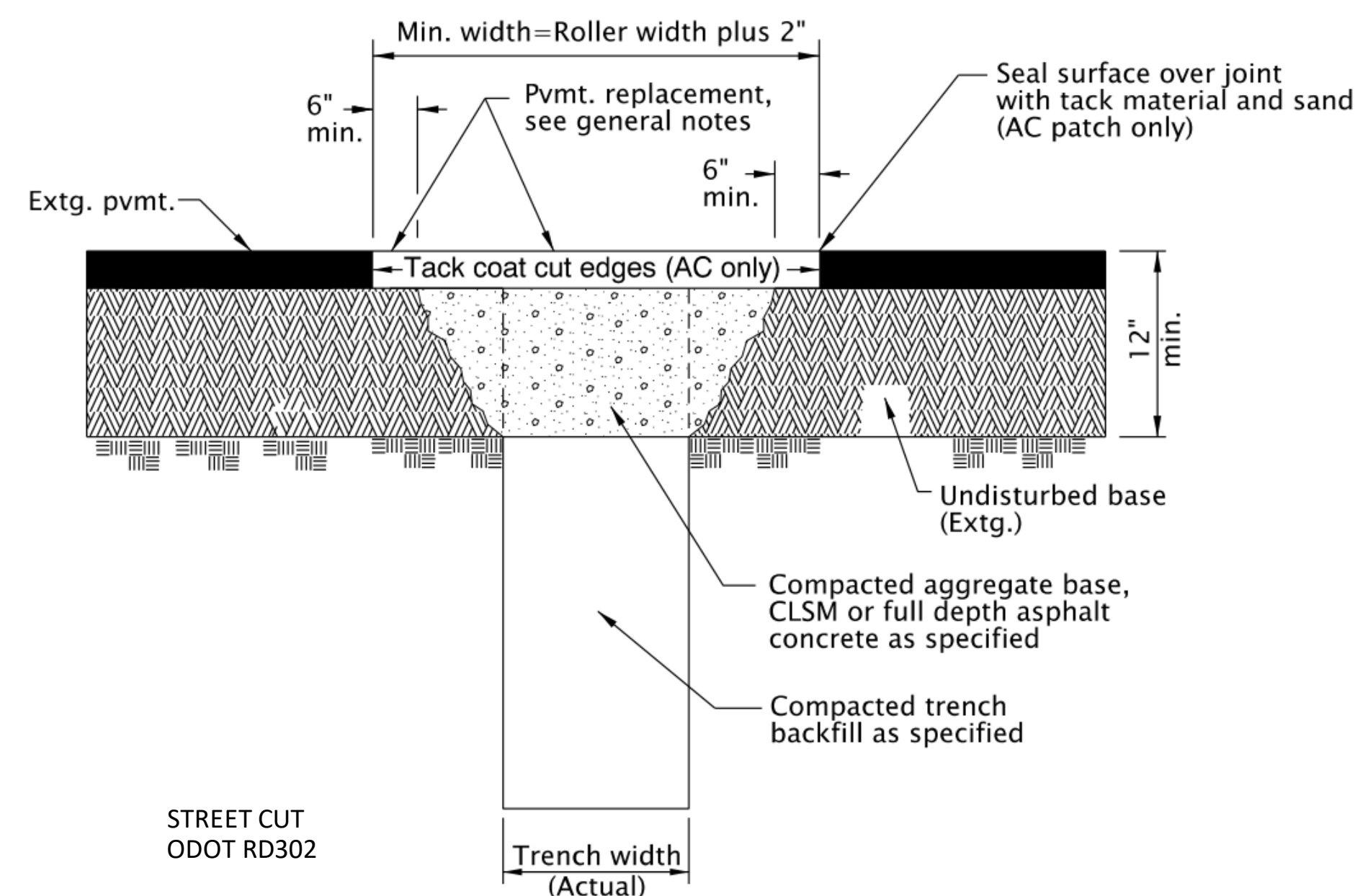
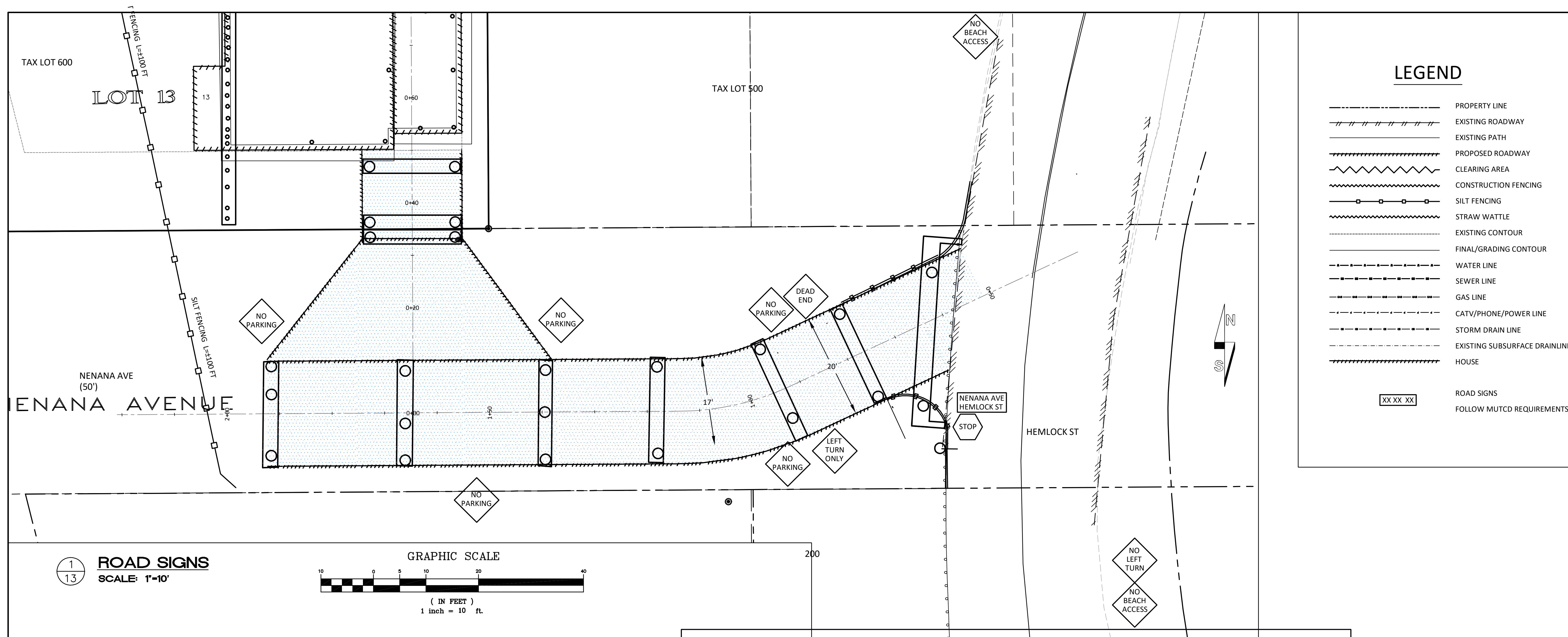
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STANLEY ROBERTS
TAX LOT 600 - NENANA AVENUE
DETAILS

CANNON BEACH/MAP 5N 10W 31

SHEET
C12
OF 13



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INTERSECTION

CANNON BEACH/MAP 5N 10W 31

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