Final Drainage and Irrigation Report
Northside Blvd & Karcher Rd, Nampa
Project No. A023(731); Key No. 23731

Prepared for
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Acronyms and Abbreviations

EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
IDEQ	Idaho Department of Environmental Quality
IDF	Intensity-Duration-Frequency
IDWR	Idaho Department of Water Resources
IPDES	Idaho Pollutant Discharge Elimination System

1. Introduction

This report summarizes the hydrologic and hydraulic analyses for the KN 23731 Northside Blvd & Karcher Rd roundabout project. The project's planned improvements include reconstructing Northside Blvd and Karcher Road intersection from a signalized intersection to a dual-lane roundabout. The project also includes constructing a combination of widened shoulders, sidewalks, multi-use pathways, roundabout landscaping, storm chambers, illumination, RRFB's and containment walls. Project improvements extend approximately 650-feet east along Karcher Road (terminating just west of the railroad tracks) and approximately 800-feet north along Northside Blvd.

There is an adjacent project that the City of Nampa is undertaking concurrently along Northside Boulevard to the Birch Land intersection (Northside Bouvard Improvements, Phase 2 – Project Number N07963). Some drainage improvements are integrated between these two projects.

This report addresses both the existing conditions and proposed improvements while providing corresponding designs and drainage recommendations for the roadway improvements.

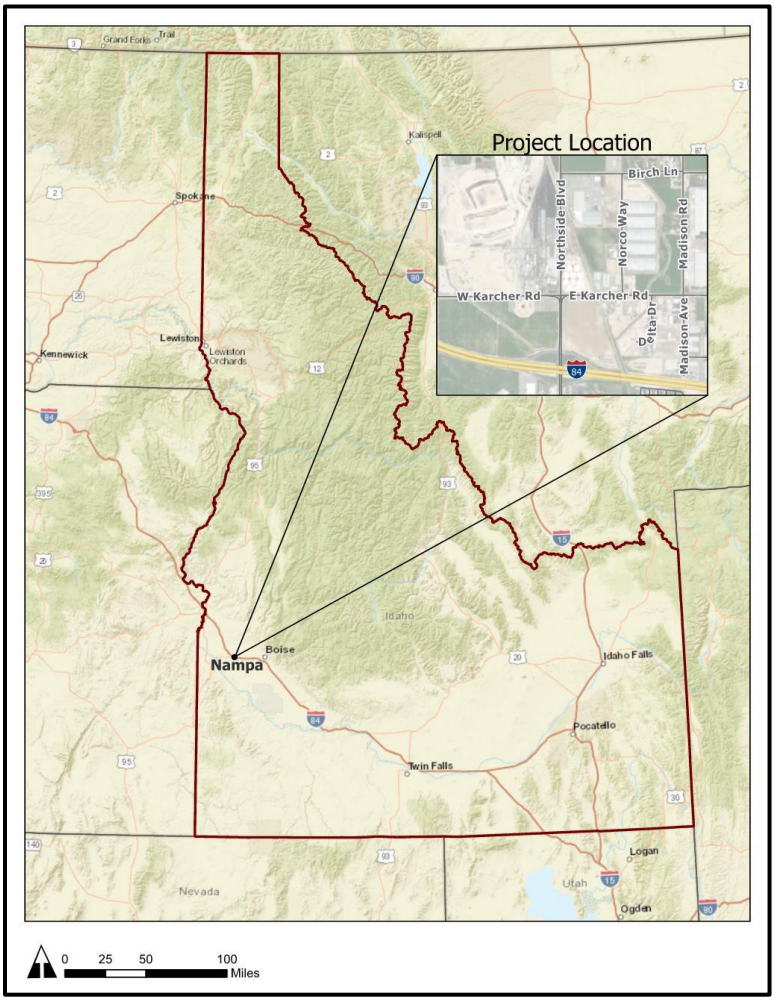


Figure 1. Vicinity Map

2. Existing Conditions

2.1 Drainage Patterns

Drainage patterns within the project limits were analyzed based on site visits and survey data.

The existing project area has limited defined drainage systems. The existing roadway generally sits higher than adjacent ground, and stormwater generated from the pavement surface sheet flows to the outside shoulders where it either infiltrates or spreads onto the adjacent properties. Along the west side of Northside Boulevard from station 40+00 to station 56+00 roadway (beyond the project limits) runoff enters a series of ditches and culverts that typically flow to the north.

Stormwater drainage and runoff generated from adjacent private property are self-contained along the project corridor. However, there is a building rooftop on the west side of Northside Boulevard, between stations 40+00 and 44+00 that contributes offsite runoff volume to the public right-of-way.

Since it is anticipated that the project will not retain the existing systems, the capacities of the existing drainage facilities were not evaluated.

The drainage systems beyond the project limits were also not evaluated.

2.2 Gravity Irrigation System

In general, the project limits do not have any gravity irrigation facilities. The two adjacent parcels that are actively growing crops are irrigated utilizing pressurized irrigation and/or well heads. The only facility in the project limits that could be possible associated with gravity irrigation is a 12" concrete pipe along the east leg of Karcher Road. This pipe crosses Karcher along the western limits of the railroad right-of-way and appears to be facilitating a drain that flows north.

This existing 12" pipe will remain in place and not be impacted with the project.

3. Proposed Conditions

3.1 Proposed Drainage Patterns

The project will collect stormwater from the project limits in catch basins along the curb and gutter and convey it to stormwater infiltration facilities adjacent to the roadway. The majority of the project limits will drain to a facility located along the south leg of Northside Blvd, on the west side of the road near the driveway entrance for an Amalgamated Sugar Company parking lot. This facility will utilize the StormTech® chambers produced by Advanced Drainage Systems to ensure the facility has a larger void ratio, thus requiring a smaller footprint. This facility will handle runoff from the proposed improvements along the south and east legs, and the majority of the intersection.

The proposed improvements to the west leg of the intersection, along Karcher Road, are minimal. Therefore, roadway improvements will tie into the existing facilities.

The north leg of the intersection, along Northside Blvd, will see a high point approximately 250-feet north of the intersection. Runoff generated south of this high point will be conveyed to the StormTech® facility located on the south leg. Runoff generated north of this high point will be

collected in inlets and conveyed to the project's northern limits where it will connect to a storm system that will be constructed with the adjacent City of Nampa project (Northside Bouvard Improvements, Phase 2 – Project Number N07963). Until that adjacent project is constructed, the stormwater collected along the north leg of this project will be temporarily piped to the existing ditch along the west side of the road (where the water has historically drained).

Amalgamated Sugar Company currently has one building on the west side of Northside that contributes runoff to Northside Blvd. With the project improvements, drainage from this building will be separated from Nampa's public right-of-way drainage. Behind the roadway curb, a concrete barrier will be installed with a trench drain just west of the barrier between Station 40+00 and the northern limits of the project. The trench drain will sit approximately 1-foot below the concrete barrier due to curbing and will collect runoff from the buildings. Ultimately this drainage will be routed through the adjacent City of Nampa project (Northside Bouvard Improvements, Phase 2 – Project Number N07963) and directed to a facility to be constructed with that project. Until that adjacent project is constructed, the stormwater collected within this trench drain will temporarily discharge to the existing ditch along the west side of the road (where the water has historically drained).

See Appendix A for drainage basin maps.

4. Hydrology/Hydraulics

4.1 Design Standards

The project is designed in accordance with the City of Nampa Engineering Development and Policy Manual 2023 Edition. Peak flows were calculated using the Rational Method, as directed in Section 106, Subsection D.

The City of Nampa currently holds an Idaho Pollutant Discharge Elimination System (IPDES) permit for stormwater discharges issued by the Idaho Department of Environmental Quality (IDEQ). This permit allows stormwater discharges to waterways but requires that events up to the 95th percentile storm event be treated for contaminants and preferably be infiltrated. The Environmental Protection Agency (EPA) has identified that the 95th percentile storm is equivalent to 0.6" of rainfall in a 24-hour event (approximately equivalent to the 2-year event) for Ada County Highway District, and therefore this value can be used for the remaining Treasure Valley area.

Table 1 lists the design criteria utilized for the proposed stormwater infiltration pond calculations.

Table 1: Stormwater Infiltration Pond Design Criteria Summary

Feature	Design Requirements*
Drainage Facility Storm Frequency and Runoff Volume	100-year, Rational Method, Peak Volume per Section 106.D
Drainage Facility (Percolation Design)	Drain within 48-hours for the 100-yr event per Section 106.I.7 Minimum 0.25-inches/hour infiltration rate per Section 106.K.2 3-foot vertical separation to seasonal high groundwater per Section 106.I.5
Primary Conveyance System	50-year storm, Peak Flow per Section 106, Table D1.1
Flow Spread	Arterial Street: No curb overtopping, leave one 12-foot lane open in each direction free of water per Section 106.G.2.1.C
Inlet Spacing	750-ft maximum per Section 106.G
Minimum Pipe Diameter	12-inch minimum per Section 106.F.2.1
Sediment Storage	15% additional volume per Section 106.I.4.2
Pre-Treatment (Sand & Grease Traps)	Maximum velocity through throat is 0.5 feet/second per Section 106.I.4.1

*In accordance with the City of Nampa Engineering Development Process and Policy Manual Division 100, Section 106-Drainage and Stormwater Design Policy (2023).

4.2 Infiltration Rates and Groundwater

A geotechnical investigation was performed for this project by GeoEngineers. They performed site specific infiltration testing at three designated locations, at depths approximately 7-8 feet below the ground surface. The two lowest measured rates ranged between 3.2 and 3.8-inches/hour. GeoEngineers subsequently recommend a design infiltration rate of 1.6-inches/hour.

Pressure transducers were also installed at two locations to monitor the groundwater over the course of a year. Groundwater levels were fairly static (only fluctuating around 1-foot +/-). One location monitored saw groundwater levels being 12-13 feet below the ground surface while the other location monitored was 15+ feet below ground.

See Appendix C for details regarding the Geotechnical Engineering Report.

4.3 Methodology

The Rational Method is an effective and simple method for calculating stormwater runoff of smaller drainage basins. The method was initially designed to estimate the runoff rate of an area, but runoff volume can also be estimated as well using the 'Modified Rational Method'. The City of Nampa has adopted the Rational Method as an acceptable methodology in calculating stormwater runoff for basins with contributing areas less than 100 acres.

The peak stormwater runoff rate is estimated from the following equation:

Flow Rate

$$Q_d = C \times I_d \times A$$

where:

Q_d = design peak flow rate (cfs) at a certain storm duration

C = Runoff coefficient (0.90 for pavement and concrete and 0.95 for roofs)

I_d = Rainfall Intensity (in/hr) at a certain storm duration (from Nampa's Engineering Development and Policy Manual, Section 106, Table D.1.4)

A = Area (acre)

For simplicity of calculations, a C value of 0.90 was used on all impervious areas and 0.35 was used for all pervious areas within the drainage basins. The rainfall intensity is taken from an Intensity Duration Frequency (IDF) graph or table, which is unique to each geographic area. The Rational Method assumes an increasing rainfall intensity starting at zero and peaking at a duration equal to the time of concentration. The rainfall intensity is higher for shorter durations than for longer durations.

The Rational Method can be modified to estimate the total runoff volume for a given duration and rainfall frequency. This is done by assuming the rainfall runoff starts at zero and increases in a straight line to the peak runoff rate (at the corresponding time of concentration or rainfall duration) and then decreases back to zero at double the rainfall duration (as shown in in Figure 2 below). Nampa's standard is to evaluate each storm duration and pick the duration that produces the largest volume. The runoff volume can be calculated with the following equation:

Pond Volume Calculation

$$V = Q_p * D * 60\frac{min}{hr} * 60\frac{secs}{min} - I_r * D * 60\frac{min}{hr} * 60\frac{secs}{min}$$

where:

V = Total Runoff Volume ((cubic feet (cf))

Q_p = peak flow rate (cfs) at a certain storm duration

D = Rainfall Duration ((hours (hr))

I_r = Infiltration Rate (inches/hour)

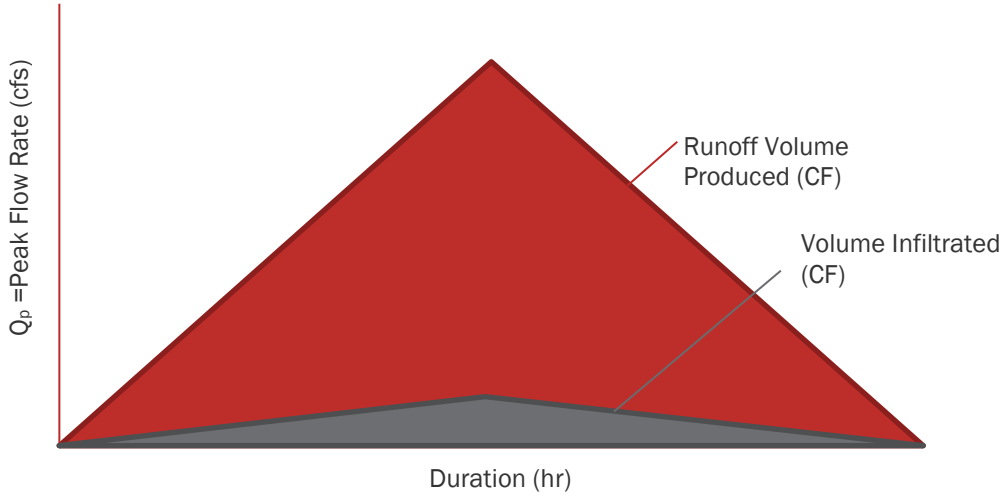


Figure 2: Runoff Volume Sketch

Calculations for each drainage area can be found in the spreadsheets in Appendix B.

4.4 Design Factors

4.4.1 Sedimentation

Drainage facilities were designed to be oversized by 15 percent to account for debris and sedimentation that occurs between maintenance cycles. It is recommended that City of Nampa inspect infiltration facilities and remove the sediment as needed.

4.4.2 Snowmelt

No special considerations were taken to account for peak flows that occur during spring snowmelt. The amount of snow that the Nampa area typically receives is minor enough to be inconsequential to the drainage design and calculations.

4.4.3 Time to Drain

Based on the recommended infiltration rates provided by the geotechnical engineer, it is anticipated that the drainage facilities will take less than 24-hours to infiltrate the full 100-year, 1-hour storm event. This meets the City of Nampa Engineering Development Process and Policy Manual standard.

4.4.4 Overflow Routing

The proposed drainage facilities are located adjacent to the proposed roadway. The facilities are not anticipated to overtop the roadway within the project limits for the 100-year storm event. If an extreme event occurs and stormwater does happen to overflow the drainage facility and adjacent roadway, the water will predominately flow into adjacent fields or parcels.

4.4.5 Pipe Sizing

Pipe sizing for the proposed conveyance system was completed for the project. Parametrix used the 50-year, 10-minute design storm to verify pipe sizes. The results of this analysis can be seen in Appendix B.

4.4.6 Water Quality Requirements

The proposed conveyance and storage facilities are designed to store and infiltrate stormwater within the project limits, to the extent practical and reasonable. As such, the water quality and total maximum daily load (TMDL) standards will be met with this project.

The proposed design will convey stormwater runoff to sediment and grease traps that will provide pretreatment prior to discharging into the proposed storm chamber facility.

4.4.7 Groundwater Separation

Groundwater was monitored and determined to be approximately 13-feet below ground, near the south leg of Northside Blvd. The bottom of the proposed storage facility will be approximately 10-feet below ground, thus maintaining the required separation.

5. Drainage Analysis Results

The proposed improvements were divided into three drainage basins. Basin A flows to the proposed storm chamber facility on the south leg of Norhtside Blvd. Basin B is the north leg of Northside Blvd and Basin C is for the Amalgamated Sugar buildings. Both Basins B and C drain to facilities that will be constructed with the adjacent City of Nampa project (Northside Bouvard Improvements, Phase 2 – Project Number N07963).

Peak 50-year flow rates and the 100-year volume requirements were calculated for each basin using 10-minutes and 1-hour time of concentrations, respectively. This information was used to determine dimensions and locations for the proposed infiltration facilities. The values given for Basins B and C represent the amount when leaving the project limits, and do not include any additional flows that may be generated from areas north of this project. The recommended treatments for each segment are identified in the table below:

Table 2: Volume and Peak Flow Summary

Drainage Basins	Q_{50} (CFS)	V_{100} (CF)*	V_{pr} (CF)**	Proposed Improvement
A	8.74	14,652	18,423	StormTech® Chambers (33.75'Wx132.43'Lx5.5'D
B	1.87	2,851	N/A	Storage by adjacent project
C	0.53	1,811	N/A	Tie into existing Karcher Road Facilities (No increase in drainage area)
D	4.51	6,871	N/A	Storage by adjacent project

*V_{100} = Required volume, (does not include 15% sedimentation factor)
**V_{pr} = Storage volume provided, accounting for void ratios

Note that all supporting calculations can be seen in Appendix B.

5.1 Shallow Injection Well Inventory

The proposed stormwater facility meets the criteria of a Shallow Injection Well as defined by the Idaho Department of Water Resources (IDWR). As such, this facility will need to be registered with IDWR. The appropriate inventory form is included in Appendix D.

6. Floodplain

All of the proposed improvements associated with this project occur outside the Federal Emergency Management Agency's (FEMA) regulatory floodplain; therefore, no additional floodplain related approvals are required (Pannel #16027C0377F, published 05/2011).

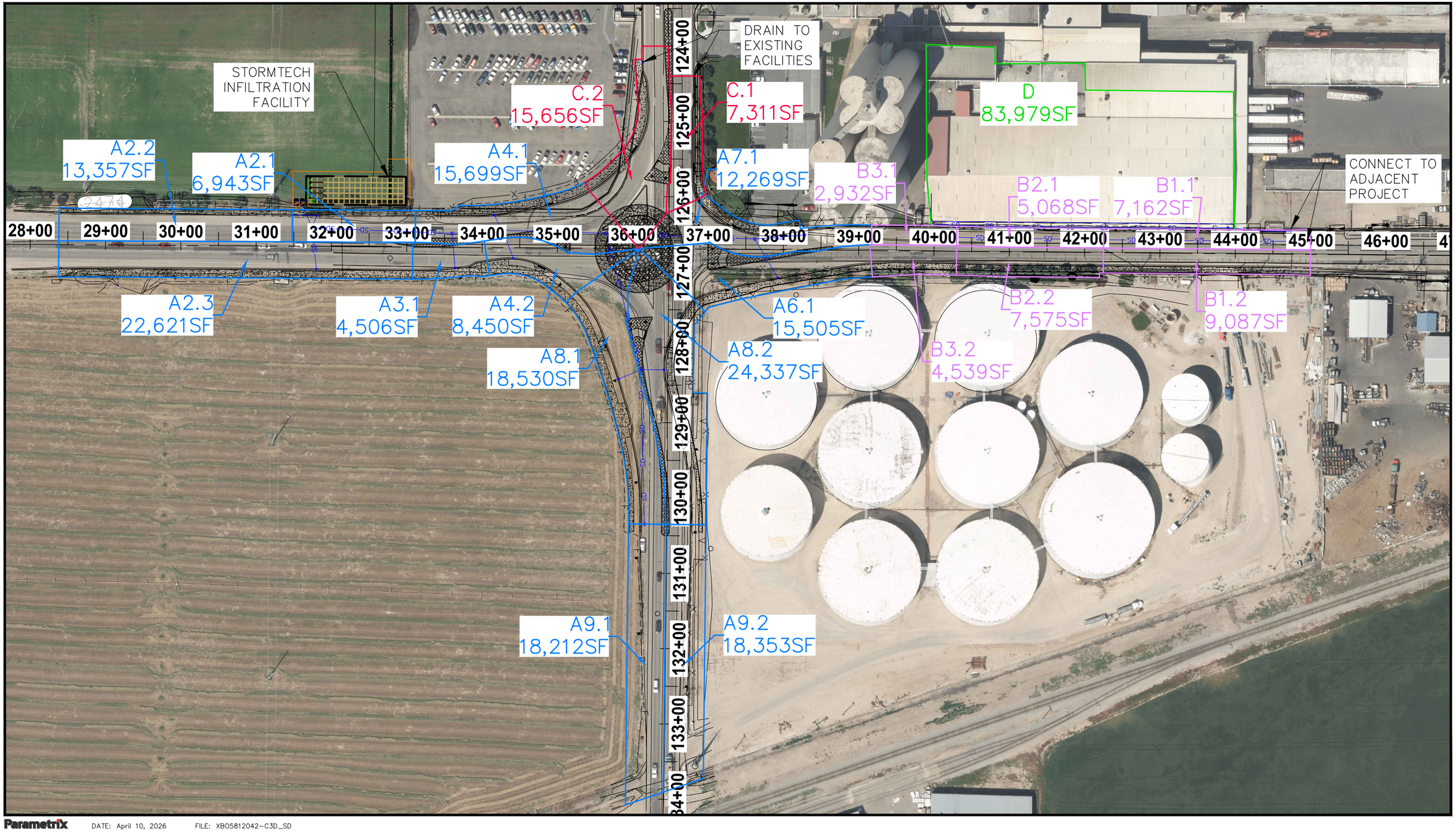
7. Conclusion

Stormwater infiltration facilities have been designed to meet the City of Nampa Engineering Development Process and Policy Manual (2023) guidelines for drainage and stormwater design to the extent practical. The majority of the project improvements will drain to an infiltration facility

located along the west side of Northside Boulevard, just south of the Karcher intersection. Drainage facilities for the north leg of Northside Boulevard have been designed in coordination with the adjacent City of Nampa project (Project Number N07963).

Appendix A

Drainage Basin Display



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VERTICAL: 1" = 120

DRAINAGE BASIN MAP

CITY OF NAMPA

Appendix B

Design Calculations

Proposed Storm Chamber

Roadway Only - 1.9 Inch Per Hour

Using Nampa, ID IDF Data

Storm Event		100
Drainage Area (acres):	Area in ft^2	178,789
	Area in Acres	4.10
Runoff Coefficient (c)		0.82
Infiltration Rate	Inches/Hr	1.9
Predevelopment Rate (if any)		0 cfs

Runoff Coefficient (c) for Combined Areas

Imp.	Perv.	Total Area sf
152,524	26,265	178,789
c 1	**c 2**	
0.90	0.35	

Weighted (c) Value: 0.82

Compute Peak Volume

Storm Duration		I	Q	Runoff Vol	Percolation Vol	PreDev. Vol	V_R Required Vol
Min	Hr	in/hr	cfs	ft^3	ft^3	ft^3	ft^3
10 min	0.17	3.1	10.42	6,254	118	0	6,136
15 min	0.25	2.6	8.74	7,868	176	0	7,692
20 min	0.33	2.2	7.40	8,877	235	0	8,642
30 min	0.50	1.8	6.05	10,894	353	0	10,541
40 min	0.67	1.5	5.04	12,104	470	0	11,634
50 min	0.83	1.3	4.37	13,113	588	0	12,526
60 min	1.00	1.1	3.70	13,315	705	0	12,610
2 hours	2.00	0.63	2.12	15,252	1,410	0	13,841
3 hours	3.00	0.46	1.55	16,704	2,116	0	14,589
4 hours	4.00	0.36	1.21	17,430	2,821	0	14,610
5 hours	5.00	0.3	1.01	18,157	3,526	0	14,631
6 hours	6.00	0.26	0.87	18,883	4,231	0	**14,652**
8 hours	8.00	0.2	0.67	19,367	5,642	0	13,726
10 hours	10.00	0.17	0.57	20,578	7,052	0	13,526
12 hours	12.00	0.15	0.50	21,788	8,463	0	13,326
18 hours	18.00	0.11	0.37	23,967	12,694	0	11,273
24 hours	24.00	0.084	0.28	24,403	16,925	0	7,478
Total Design Vol. (cf)							**14,652**
Required Storage (With 15% sediment)							**16,850**

Storage Chamber Volume

Infiltration Area Per Column	890.8
Volume Per Column	3,684.6
# Of Columns	**5.0**

Infitration Area (SF)	**4,454**
Volume (CF)	**18,423**
Is storage Adequate?	**YES**

90% Volume Drain within 24 Hrs

4,454	**Area Infiltration (ft^2)**		
705	**Volume Infiltration (ft^3/hr)**		
16,925	**>**	**15,165**	**90% Drains within 24 hrs OK**
23.9	**hrs**	**Time to Drain 100-yr, 1-hr Storm**	

Storm Chamber Infiltation Area

Main Chambers			
Length	7.17	FT	
Width	6.42	FT	
Area Per Chamber	46.03	SF	
# of Chambers per Column	17	EACH	
End Caps	8.42	SF	Measured in CADD
# of End Caps per Column	2	EACH	
Spacing Between Chambers			
Length	7.17	FT	
Width	0.75	FT	
Area Per Chamber	5.38	SF	
# of Chambers per Column	17	EACH	
Infiltration Area Per Column	**890.79**	**SF**	

Storm Chamber Storage Volume

Main Chambers			
Volume per Chamber	175	CF	
# of Chambers per Column	17	EACH	
End Caps			
Volume per End Cap	45.1	CF	
# of End Caps	2	EACH	
Drain Rock Volume			
Depth below Storage	0.75	FT	
Area of Rock per Column	890.79	SF	
Volume of Rock Below Storage/Column	*668.09*	*CF*	
Area of Rock outside of Cell	7.22	SF	(assume 60% of 2 triangles HxW)
Length of Rock per Column	121.89	FT	
Volume of Rock Between Storage/Colun	*880.35*	*CF*	
Rock Void Ratio	40.00	%	
Storage Area Per Column	**3684.58**	**CF**	

Northside/Karcher Storm Chambers						
Drainage Basin #	**Total Area (acre)**	**Total Area (sf)**	**Imperv, C=0.90 (sf)**	**Pervious, C=0.35 (sf)**	**Weighted "C" Factor**	**Drainage Area (Ac)**
Basin A2.1	0.16	6,993	6,993	0	0.900	0.16
Basin A2.2	0.31	13,340	13,340	0	0.900	0.31
Basin A2.3	0.52	22,590	22,590	0	0.900	0.52
Basin A3.1	0.10	4,506	4,506	0	0.900	0.10
Basin A4.1	0.36	15,700	14,742	958	0.866	0.36
Basin A4.2	0.19	8,450	7,328	1,122	0.827	0.19
Basin A6.1	0.36	15,506	13,824	1,682	0.840	0.36
Basin A7.1	0.28	12,270	11,136	1,134	0.849	0.28
Basin A8.1	0.43	18,531	15,471	3,060	0.809	0.43
Basin A8.2	0.56	24,337	17,105	7,232	0.737	0.56
Basin A9.1	0.42	18,213	14,886	3,327	0.800	0.42
Basin A9.2	0.42	18,353	10,603	7,750	0.668	0.42
Total (Storm Chambers)	**4.10**	**178,789**	**152,524**	**26,265**	**0.819**	**4.10**
North Basin B0.1	0.00	0	-	0	0.350	0.00
North Basin B0.2	0.00	0	-	0	0.350	0.00
North Basin B1.1	0.16	7,162	7,162	0	0.900	0.16
North Basin B1.2	0.21	9,086	8,811	275	0.883	0.21
North Basin B2.1	0.12	5,071	5,071	0	0.900	0.12
North Basin B2.2	0.17	7,576	6,240	1,336	0.803	0.17
North Basin B3.1	0.07	2,935	2,935	0	0.900	0.07
North Basin B3.2	0.10	4,539	3,661	878	0.794	0.10
Total (Adjacent North Project)	**0.83**	**36,369**	**33,880**	**2,489**	**0.862**	**0.83**
West Karcher C.1	0.17	7,311	7,311	0	0.900	0.17
West Karcher C.2	0.36	15,656	14,303	1,353	0.852	0.36
Total (Existing System)	**0.53**	**22,967**	**21,614**	**1,353**	**0.868**	**0.53**
Basin D	1.93	83,979	83,979	0	0.900	1.93
Total (Amalgamated Sugar)	**1.93**	**83,979**	**83,979**	**0**	**0.900**	**1.93**
Grand Total	7.39	322,104	291,997	30,107	N/A	7.39

KN 23731: Northside/Karcher Q and Spread Calcs
7/20/2025
Q50 Calculations

Kenny Dodd

50-YEAR HYDROLOGY CALCULATIONS

BASIN	Inlet	Contributing Area (sf)	Contributing Area (ac)	C Value	10-min Intensity (in/hr)	10-min Peak Inlet Flow (cfs)	MH Structure	10-min Peak Trunkline Flow (cfs)
Storm Chambers								
A	A2.1	6,993	0.161	0.900	2.60	0.38	A2	8.74
A	A2.2	13,340	0.306	0.900	2.60	0.72		
A	A2.3	22,590	0.519	0.900	2.60	1.21		
A	A3.1	4,506	0.103	0.900	2.60	0.24	A3	6.44
A	A4.1	15,700	0.360	0.866	2.60	0.81	A4	6.19
A	A4.2	8,450	0.194	0.827	2.60	0.42		
A	A5.0	N/A	N/A	N/A	N/A	N/A	A5	4.97
A	A6.1	15,506	0.356	0.840	2.60	0.78	A6	1.40
A	A7.1	12,270	0.282	0.849	2.60	0.62	A7	0.62
A	A8.1	18,531	0.425	0.809	2.60	0.90	A8	3.57
A	A8.2	24,337	0.559	0.737	2.60	1.07		
A	A9.1	18,213	0.418	0.800	2.60	0.87	A9	1.60
A	A9.2	18,353	0.421	0.668	2.60	0.73		
Adjacent North Project								
B	B0.1	0	0.000	0.350	2.60	0.00	N/A	1.87
B	B0.2	0	0.000	0.350	2.60	0.00		
B	B1.1	7,162	0.164	0.900	2.60	0.38	B1	1.87
B	B1.2	9,086	0.209	0.883	2.60	0.48		
B	B2.1	5,071	0.116	0.900	2.60	0.27	B2	1.01
B	B2.2	7,576	0.174	0.803	2.60	0.36		
B	B3.1	2,935	0.067	0.900	2.60	0.16	B3	0.37
B	B3.2	4,539	0.104	0.794	2.60	0.22		
Existing Karcher System								
C1	N/A	7,311	0.168	0.900	2.60	0.39	N/A	1.19
C2	N/A	15,656	0.359	0.852	2.60	0.80		
Amalgamated Sugar Roof Drain								
D	D1	83,979	1.928	0.900	2.60	4.51	N/A	4.51

Appendix C

Supporting Information

April 2026 | 314-5812-042

Where pipes do not daylight, pipe clean-outs should be installed to provide proper maintenance of the drainage pipes. Clean out should be spaced per ITD design guidance. Over time, drainage culverts and pipes can become obstructed with debris or soil. It is important that drainage pipes in cuts along the project alignment continue to function adequately over the design life of the roadway.

240.14.01 INFILTRATION TESTING

Groundwater levels should be considered when designing infiltration facilities such as seepage beds or stormwater ponds to limit the potential of groundwater mounding effects.

240.14.01.01 Overview

We completed infiltration testing within test pits GEI-TP1-24 through GEI-TP3-24. The testing was completed in general accordance with in-situ small-scale Pilot Infiltration Test (PIT) methods.

Photograph 1. GEI-TP1-24 infiltration set up.

The test pits were excavated to depths ranging from about 7½ to 8 feet bgs which is the approximate bottom of the infiltration stormwater chamber receiving layer. While excavating the test pits we observed approximately 2½ to 7 feet of native silt (ML) and clay (CL) overlying silty sand (SM).

The infiltration test pit dimensions provided an infiltration surface area at the bottom of the test pit of approximately 12 square feet.

A vertical measuring rod was placed on the floor of each test pit as a visual reference for monitoring water levels during testing. A piezoelectric pressure transducer was secured on the side of the measuring rod at the bottom of each test pit to provide water level records in 30-second to 1-minute intervals throughout the duration of the test. Water was introduced into the test pit using a hose and perforated bucket diffuser to reduce disturbance to the test pit bottom. Photograph 1 above shows our typical test setup.

After the test set up was complete, we presoaked the test pits by filling them with water for several hours. After presoaking the test pits, we completed a series of falling head infiltration tests. The test pits were filled to a head of water of about 14 inches and the water level was allowed to drop approximately 2 inches before the pit was refilled to the initial level again. At the conclusion of the falling head test series, we completed constant head infiltration tests by adding water to the test pit at a rate that maintained approximately 12 inches of water in the pit. The flow rate, recorded in gallons per minute, was calculated by recording the time to fill a 5-gallon bucket. The water was then shut off and the pit was allowed to drain for 1 hour and the water level was recorded. At the conclusion of the infiltration tests, the test pits were backfilled with the excavated soils and compacted by tamping with the excavator bucket.

240.14.01.02 Test Results

Infiltration rates were calculated based on the falling-head method trendlines and the flow rate required to maintain 12 inches of water in the test pit for 1 hour during the constant-head method. The results of the two infiltration test methods were compared. Our measured and recommended design infiltration rates for the tests are presented in Table 4.

TABLE 4. MEASURED AND CALCULATED INFILTRATION RATES

TEST PIT ID	TEST DEPTH (FT)	SOIL MATERIAL AT TEST DEPTH	MEASURED INFILTRATION RATE (INCHES/HOUR)	MAXIMUM DESIGN INFILTRATION RATE (INCHES/HOUR)
GEI-TP1-24	7.5	Silty sand (SM)	3.8	1.9
GEI-TP2-24	8	Silty sand (SM)	8.0	4.0
GEI-TP3-24	8	Silty sand (SM)	3.2	1.6

Note:

[1] The rates presented in this table are reflective of the test locations and depths only and assume a minimum of 3 feet of separation from the seasonal high groundwater elevation.

The field test results presented above represents the test at the specific depth and location indicated. We anticipate that infiltration rates could vary over short distances due to variations in fines content and soil type. The actual infiltration rates used in design should be determined by the designer by applying an appropriate factor of safety. A minimum factor of safety of two should be used, as indicated in the table above. A greater factor of safety may be warranted. The designer should select the design factor of safety that considers the severity of the impacts to the public if the system were to fail, the facility geometry, if the facility includes outlet structures, the degree of influent control to reduce siltation and bio-buildup, the quality and frequency of long-term maintenance, etc.

240.15 Geosynthetics

Based on the subsurface explorations and the preliminary roadway profile, we recommend a subgrade separation geotextile be placed below the pavement section. The subgrade separation geotextile should be placed directly on the prepared subgrade, prior to placement of the subbase layer. We recommend a nonwoven Type III subgrade separation geotextile per ITD Standard Specifications Section 718.07. Riprap, if any, should be underlain by a Riprap/Erosion Control Geotextile per ITD Standard Specifications Section 718.06.

240.16 Existing Roadway Materials

Existing HMA and underlying base/subbase materials may be reutilized as Granular Borrow, provided the project specification for use at the intended locations are met. The existing HMA pavement should not be recycled for use as Aggregate Base. If used in the subbase, the existing HMA should be ground to a maximum particle size of 3 inches, thoroughly mixed and evenly dispersed with imported Granular Subbase as required in Section 301 of the ITD Standard Specifications. We recommend that subbase contain no more than 50 percent (by weight) recycled asphalt. In addition, the use of recycled asphalt pavement for subbase should follow the governing environmental policy.

Source(s):
- ESRI Street Map Premium
- ESRI Clarity

Coordinate System: NAD 1983 StatePlane Idaho West FIPS 1103 Feet

Disclaimer: This figure was created for a specific purpose and project. Any use of this figure for any other project or purpose shall be at the user's sole risk and without liability to GeoEngineers. The locations of features shown may be approximate. GeoEngineers makes no warranty or representation as to the accuracy, completeness, or suitability of the figure, or data contained therein. The file containing this figure is a copy of a master document, the original of which is retained by GeoEngineers and is the official document of record.

Legend

- Existing Piezometer
- Boring by GeoEngineers, 2024
- Piezometer by GeoEngineers, 2024
- Test Pit by GeoEngineers, 2024
- Containment Wall

N

0 200

Feet

Site Plan

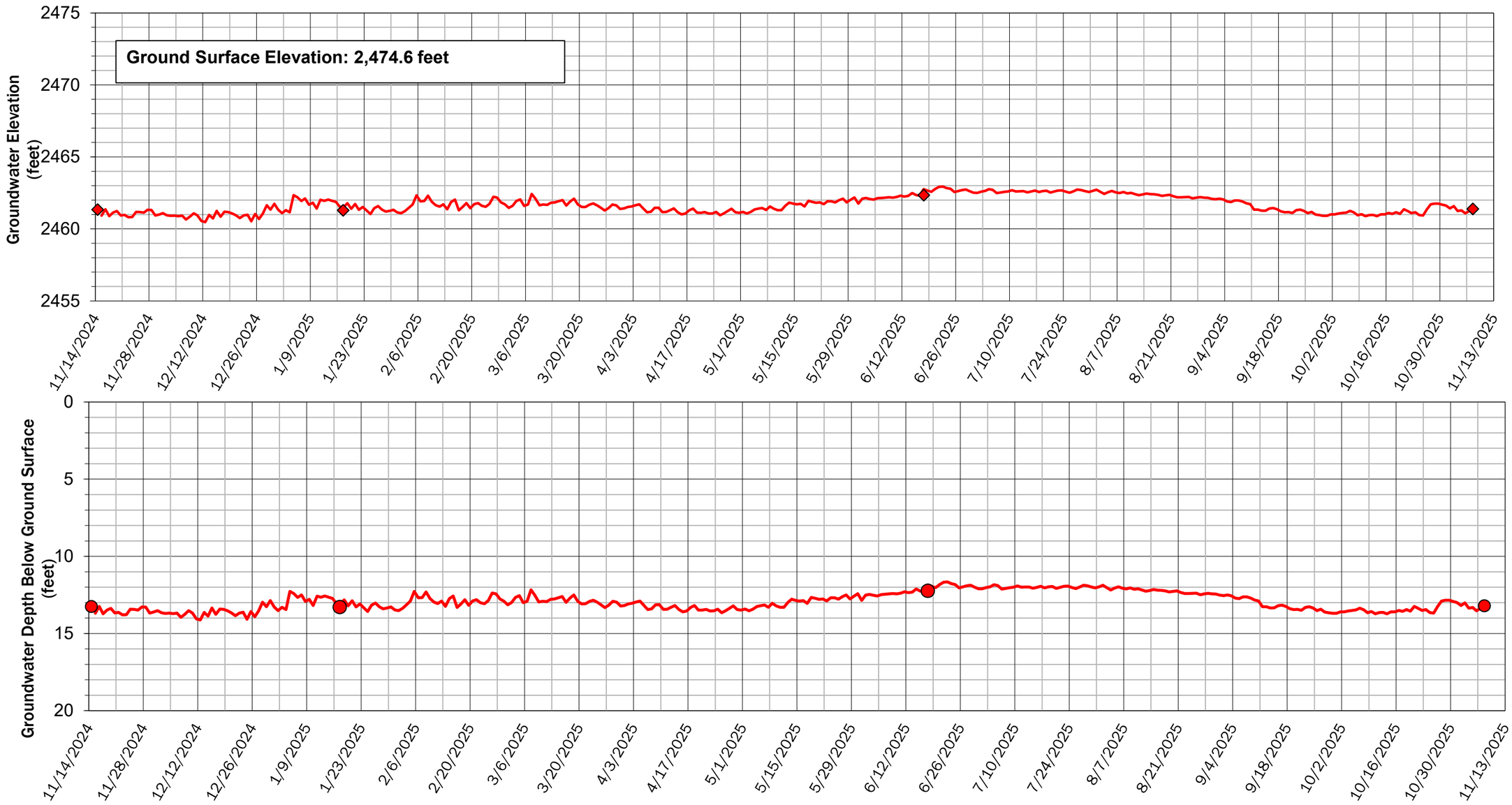
Northside Boulevard and Karcher Road Intersection Improvements - Project No. A023(731); KN23731
Nampa, Idaho

GeoEngineers

Figure 2

P:\9_9468021\GIS\9468021_Project\9468021_Project.aprx\9468021100_F02_SitePlan Date Exported: 12/17/24 by maugust

9468-021-00 Date Exported: 11/10/25



Notes:
1. Coordinates and Elevations from Ardurra.

Pressure Transducer
Manual Reading

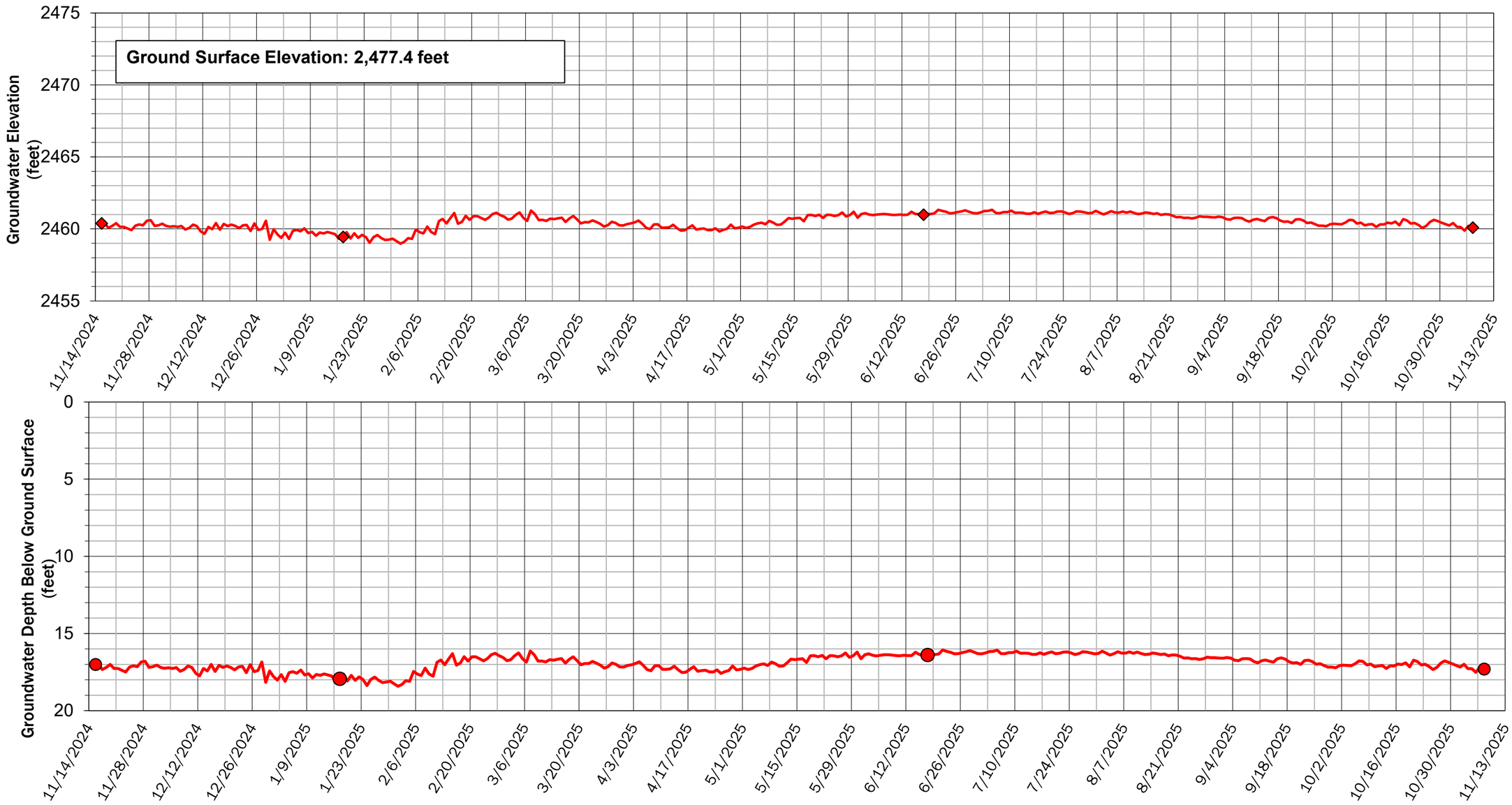
GEI-P1-24 Groundwater Levels

Northside and Karcher Roundabout Intersection Improvements; Project No. A023(731); KN23731
Nampa, Idaho

GeoEngineers

Figure E-1

9468-021-00 Date Exported: 11/10/25



Notes:
1. Coordinates and Elevations from Ardurra.

Pressure Transducer
Manual Reading

A-R Groundwater Levels

Northside and Karcher Roundabout Intersection Improvements; Project No. A023(731); KN23731
Nampa, Idaho

GeoEngineers

Figure E-2

National Flood Hazard Layer FIRMette

FEMA

116°34'42"W 43°36'32"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

116°34'5"W 43°36'6"N

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/30/2026 at 8:18 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Appendix D

IDWR Shallow Injection Well Inventory Form

April 2026 | 314-5812-042

42-39-6
03/2022

Inventory No. (Agency Use Only) _____

IDAHO DEPARTMENT OF
WATER RESOURCES

SHALLOW INJECTION WELL INVENTORY FORM

Under the Provisions of Title 42, Chapter 39 of the Idaho Code

IDAHO DEPARTMENT OF WATER RESOURCES
322 East Front St., P.O. Box 83720, Boise, ID 83720-0098

See page 4 of this form for General Instructions

I. GENERAL INFORMATION

A. Applicant Name and Address (Current Owner)**:**

Applicant Name City of Nampa, Public Works
Business Name _____
Mailing Address 500 12th Ave S
City Nampa State ID Zip Code 83651
Phone No. 1 208-468-5420 Phone No. 2 _____
Email _____

B. Facility Information:

Facility or Subdivision Name Northside Blvd & Karcher Rd (KN 23731)
Street Address N/A (Approx 400' South of Karcher Road)
Lot Canyon County Parcel #: 31296000 0 Block _____ Addition _____
City Nampa Zip Code 83687 County Canyon
Facility Phone No. _____

C. Project Engineer:

Name Cody Janson
Engineering Firm Name Parametrix
Mailing Address 7761 W Riverside Drive, Suite 201
City Boise State ID Zip Code 83714
Phone No. 1 208-898-0012 Phone No. 2 _____

E. Injection Well Classification: (Circle the proper code. In PDF version use: Tools → Comments & Markup → Oval Tool)

Code:	Injection Activity Associated With:	Code:	Injection Activity Associated With:
5A5	Electric Power Generation	5W10	Cesspools
5A6	Geothermal Heat (Source H_2O Temp > 85° F)	5W11	Septic Systems (General)
5A7	Closed-Loop Heat Pump Return (Source H_2O Temp < 85° F)	5W12	Water Treatment Plant Effluent
5A8	Aquaculture Return Flow	5W20	Industrial Process Water
5A19	Cooling Water Return (Industrial Cooling)	5W31	Septic Systems (Well Disposal)
5B22	Saline Water Intrusion Barrier	5W32	Septic Systems (w/ Drainfield)
5D2	Storm Water Runoff (Roadway/Pavement Drainage)	5X13	Mine Tailing Backfill
5D3	Improved Sinkholes	5X14	Solution Mining
5D4	Industrial Storm Runoff (Building/Pavement Drainage)	5X15	In-Situ Fossil Fuel Recovery
5F1	Agricultural Runoff Waste (Agricultural Drainage)	5X16	Spent Brine Return Flow
5G30	Special Drainage Water (Rarely Used)	5X25	Experimental Technology
5N24	Low-Level Radioactive Waste	5X26	Aquifer Remediation
5R21	Aquifer Storage & Recharge	5X27	Other Wells (Rarely Used)
5S23	Subsidence Control	5X28	Service Station Wells (Motor Vehicle Waste Disposal Wells)
5W9	Untreated Sewage	5X29	Abandoned Drinking Wells (Converted from Domestic)

II. TECHNICAL DATA

A. Injection Well Name or ID from Construction Plans: Storm Chambers

B. Injection Well Design:

☐ Infiltration Gallery ☐ French Drain ☐ Pre-cast Open Bottom Dry Well
☐ Cased Injection Well ☒ Other ADS StormTech Chambers
(include drawing with form)

Construction Date (indicate Actual, Approximate or Anticipated): Anticipated Summer 2026

C. Pre-Treatment:

☐ Sediment Basin ☐ Sand Filtration ☐ Vegetative Filter Strip or Swale
☒ Oil & Grease Trap ☐ Sand & Grease Trap ☐ Other _____

D. Injection Well Dimensions:

Length 133 (ft) Width 38 (ft) Depth 5.5 (ft)

III. LOCATION INFORMATION

A. Well Location: (Provide one of the following two options)

1) GPS Location (Datum = WGS84):
Latitude 43d 36' 14"N Longitude 116d 34' 24"W

(You can check the accuracy of your GPS data with the "Well Diller's Locator Tool" here: "http://maps.idwr.idaho.gov/locator/default.aspx")

2) A USGS Topographic Map or aerial photo with the well location marked **AND** Township, Range, Section information.

Township	Range	Section	¼, ¼, ¼ Section	¼, ¼ Section	¼ Section

(Get free maps using this tool: http://maps.idwr.idaho.gov/IrrigationRightsFinder)

B. If State or Local Highway Entity:

Distance _____ Direction ____ To Milepost No. _____ Hwy. No. _____

☐ East Bound Lane ☐ West Bound Lane ☐ Median

C. Is the Well/Facility Located on Indian Lands? ☐ Yes ☒ No

IV. WELL OPERATION

A. Constituents in Waste Stream:

☐ None ☐ Hazardous wastes ☒ Automotive fluids
(From roadway runoff)

☐ Pesticides ☐ Herbicides

☐ Other additives or chemicals _____

B. Is the injection well part of with a contamination remediation system? ☐ Yes ☒ No
If yes, please attach a copy of the signed regulatory approval for the remediation action and intended use of the injection well.

V. ATTACHMENTS (Attach additional sheets as needed)

☒ Site Maps Showing Well Locations

☒ Design Plans and Other Drawings or Schematics

☐ For Remediation Projects: Project Summary including Geology, Analysis Results, Projection Description, Target Depth, and other applicable information.

☒ If using BMP, Name of Agency and Technical Guidance Citation
Standard ISPWC Sediment & Oil Trap

☐ Other _____

VI. CERTIFICATION

I certify under penalty of law that there are no discharges of hazardous substances or other fluids in amounts that may endanger an underground source of drinking water from the injection well(s) identified on this inventory form.

Additionally, I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

All sections of this form must be complete and accurate. Incomplete forms will be returned to applicant. The information submitted is subject to verification by IDWR or its agents.

4/12/2026		Design Engineer
Date	Signature	Title

David Meldrum
Print Name

General Instructions: Form 42-39-6

A. For projects with multiple wells with the same General Information, sections II and III must be completed for each injection well, but only one copy of sections I, IV, V, and VI is required per facility.

B. A seventy-five dollar ($75.00) filing fee payable to the UIC contact receiving the form must be submitted for each shallow injection well. If applicant or current responsible party is a state or local government entity and the wells are associated with highway and street construction and maintenance, the applicant is exempt from the filing fee.

C. Submit form and accompanying filing fees to the appropriate UIC contact listed below:

For wells located within city limits and within a County Highway District right-of-way this form shall be submitted to the UIC contact listed below for that county. If your county is not listed below this form shall be submitted to the IDWR at:
UIC Program, Idaho Department of Water Resources, 322 E. Front St., P.O. Box 83720, Boise, ID 83720-0098, (208) 287-4800.

For wells located in Ada County (outside Boise City limits) and Boise County and not within a Ada County Highway District right-of-way:
Central District Health Department, 707 North Armstrong Place, Boise, Idaho 83704, (208) 375-5211.

For wells located within Boise City limits (except those within an ACHD right of way):
Public Works, Boise City Hall, P.O. Box 500, Boise, ID 83701- 0500, (208) 384-3752.

For wells located in Elmore County:
Central District Health Department, 520 East 8th St. North, Mountain Home, Idaho 83647, (208) 587-4407.

For wells located in Valley County
Central District Health Department, 703 N. 1st Street, McCall, Idaho 83638, (208) 634-7194.

For wells located within Benewah, Bonner, Boundary, Kootenai, or Shoshone County:
Panhandle Health District, 8500 N. Atlas Rd., Hayden, ID 83835, (208) 415-5220.

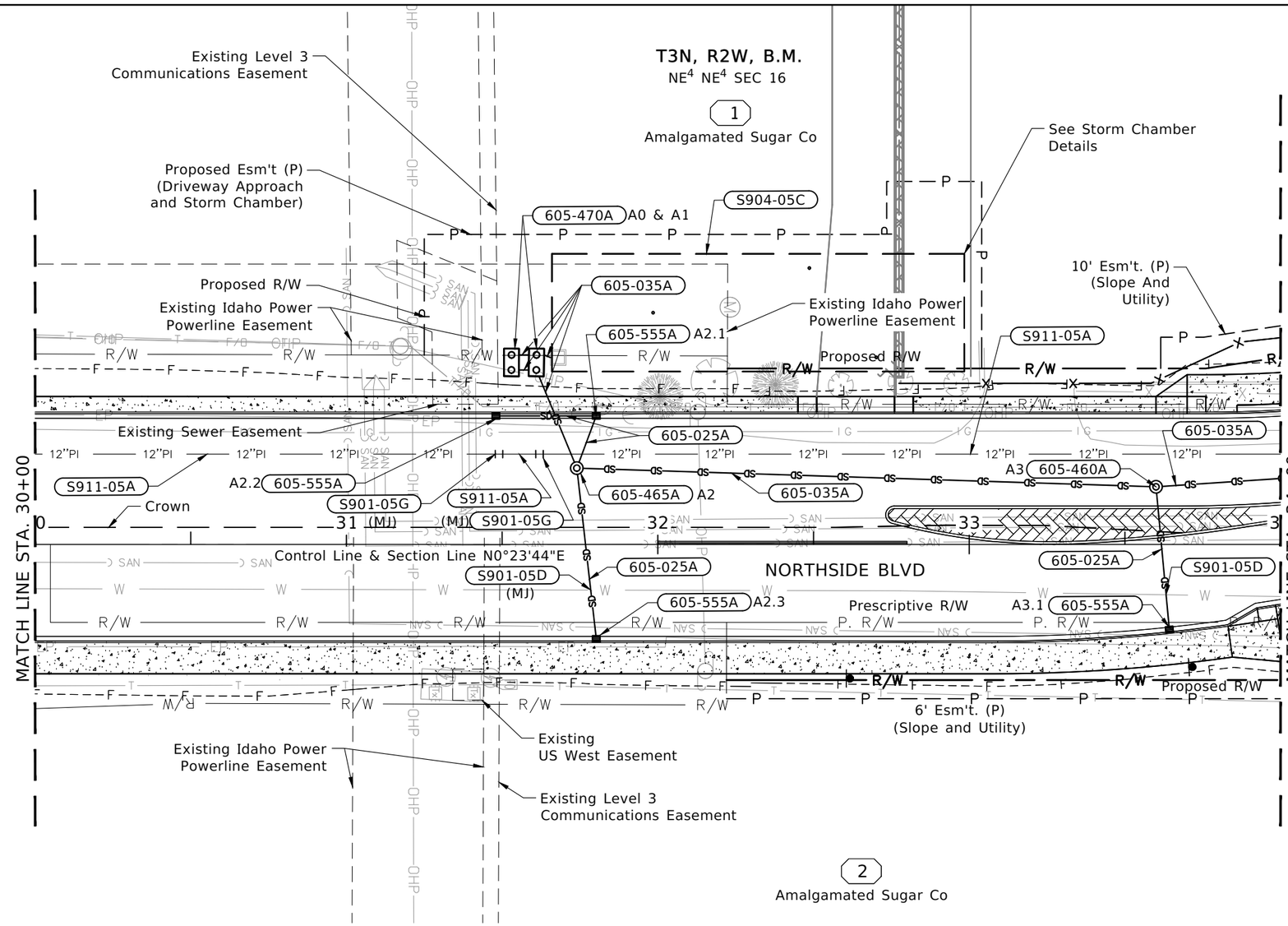
For wells located within the City of Hailey:
City of Hailey, 115 Main Street South, Suite H, Hailey, ID 83301, (208) 788-4221 Ext. 17.

For wells elsewhere in Idaho:
UIC Program, Idaho Department of Water Resources, 322 E. Front St., P.O. Box 83720, Boise, ID 83720-0098, (208) 287-4800.

For Department Use Only

Received by _____ Date _____ Reviewed By _____

Fees _____ Receipted by _____ Receipt No. _____



NOTE:

1. Meet IDEQ and IDAPA Code Requirements for Potable/Non-Potable Separation, Unless Otherwise Approved.

Scale (Feet)
20 0 20 40

605-025A 12" Storm Sewer Pipe
- 32 FT Sta. 31+48, 41.3' Lt to Sta. 31+80, 41.3' Lt
- 18 FT Sta. 31+74, 24.5' Lt to Sta. 31+80, 41.3' Lt
- 55 FT Sta. 31+74, 24.5' Lt to Sta. 31+80, 30.3' Rt
- 46 FT Sta. 33+60, 18.5' Lt to Sta. 33+64, 27.3' Rt

605-035A 18" Storm Sewer Pipe
- 8 FT Sta. 31+53, 56.0' Lt to Sta. 31+61, 56.0' Lt
- 8 FT Sta. 31+53, 60.8' Lt to Sta. 31+61, 60.8' Lt
- 7 FT Sta. 31+61, 60.8' Lt to Sta. 31+68, 60.0' Lt
- 34 FT Sta. 31+61, 56.0' Lt to Sta. 31+74, 24.5' Lt
- 186 FT Sta. 31+74, 24.5' Lt to Sta. 33+60, 18.5' Lt
- 40 FT Sta. 33+60, 18.5' Lt to Sta. 34+00, 21.2' Lt

605-460A Manhole Type B
- 1 EACH Sta. 33+60, 18.5' Lt

605-465A Manhole Type C
- 1 EACH Sta. 31+74, 24.5' Lt

605-470A Sediment & Oil Trap Manhole
- 1 EACH Sta. 31+53, 56.0' Lt
- 1 EACH Sta. 31+61, 56.0' Lt

605-555A Catch Basin (ISPWC Type SD-604)
- 1 EACH Sta. 31+48, 41.3' Lt
- 1 EACH Sta. 31+80, 41.3' Lt
- 1 EACH Sta. 31+80, 30.3' Rt
- 1 EACH Sta. 33+64, 27.3' Rt

S901-05D SP Waterline Adjustment
- 1 EACH Sta. 31+78, 14.6' Rt
- 1 EACH Sta. 33+63, 16.2' Rt

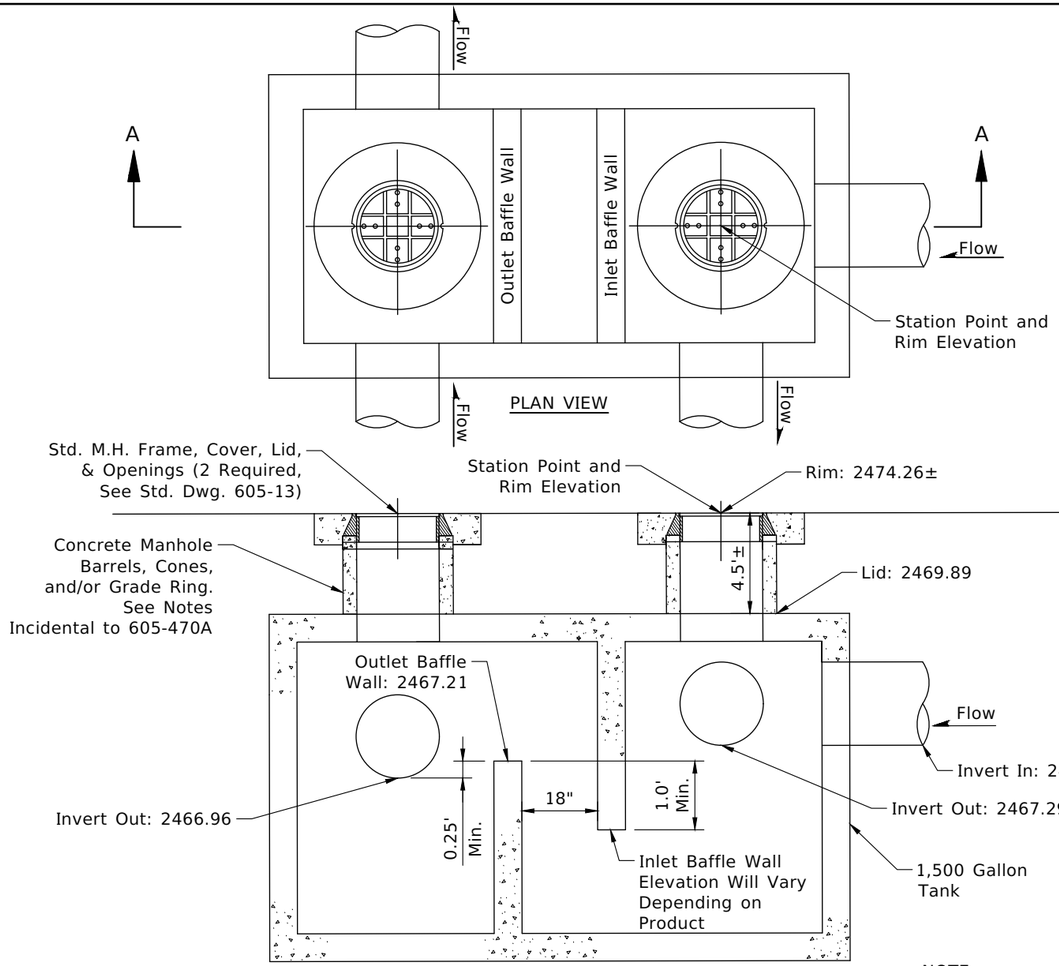
S901-05G SP 12"-11.25D Elbow
- 1 EACH Sta. 31+49, 29.0' Lt
- 1 EACH Sta. 31+62, 29.0' Lt

S904-05C SP Storm Chambers
- 1 LS Sta. 31+66, 55.5' Lt to Sta. 32+98, 93.3' Lt

S911-05A SP 12" Pressure Irrigation
- 149 FT Sta. 30+00, 29.0' Lt to Sta. 31+49, 29.0' Lt
- 13 FT Sta. 31+49, 29.0' Lt to Sta. 31+62, 29.0' Lt
- 238 FT Sta. 31+62, 29.0' Lt to Sta. 34+00, 29.0' Lt

REVISIONS				DESIGNED	SCALES SHOWN	IDAHO TRANSPORTATION DEPARTMENT	PROJECT NO.	DRAINAGE/IRRIGATION PLAN SHEET	ENGLISH
NO.	DATE	BY	DESCRIPTION	K. DODD/N. HAMDARD	ARE FOR 11" X 17" PRINTS ONLY	YOUR Safety→YOUR Mobility→YOUR Economic Opportunity	A023(731)	NORTHSIDE BLVD & KARCHER RD, NAMPA	COUNTY Canyon
				DESIGN CHECKED J. JONES					KEY NUMBER 23731
				DETAILED B. PURGANAN/N. HAMDARD	CADD FILE NAME BO5812042-DR	Parametrix			SHEET 20 OF 94
				DRAWING CHECKED P. ASHTON/J. JONES	DRAWING DATE: APRIL 2026				

FILE: BO5812042-DR LAYOUT: DR2 PATH: U:\Boise\Projects\Clients\5812-city of nampa\314-5812-042 northside boulevard and karcher road intersect improvements\99Scs\CADD\DWG\Sheets PLOTTED BY: purgabut DATE: Thursday, April 9, 2026 9:15:07 AM

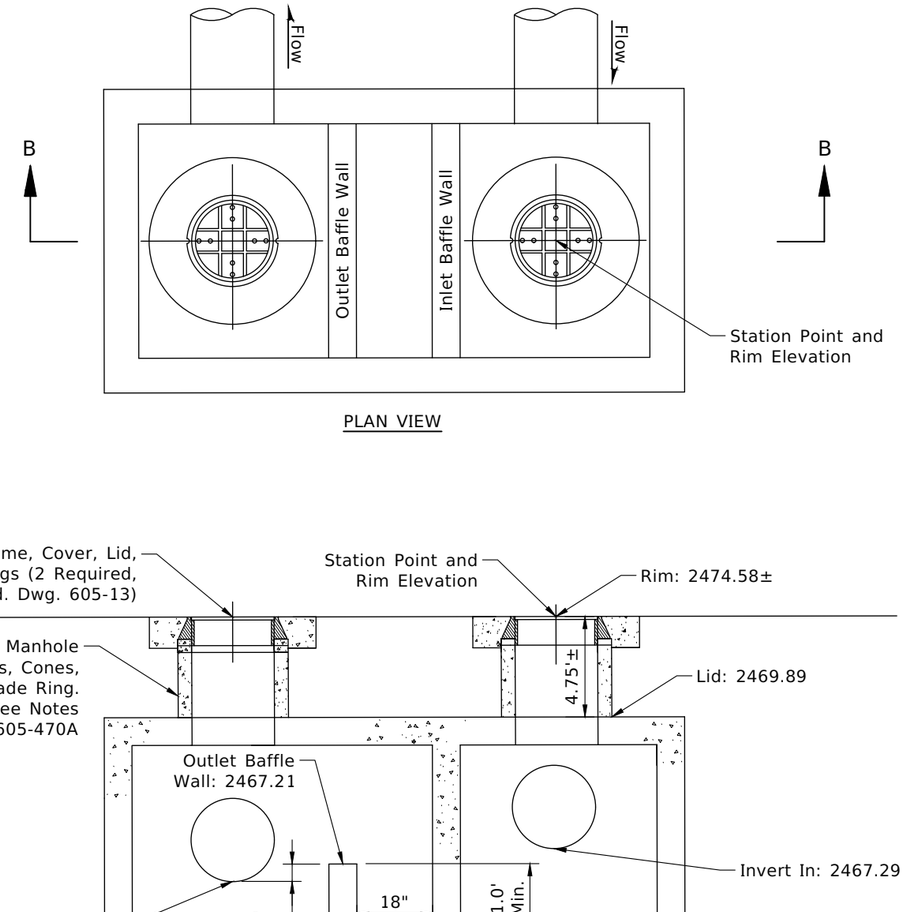


SECTION A-A

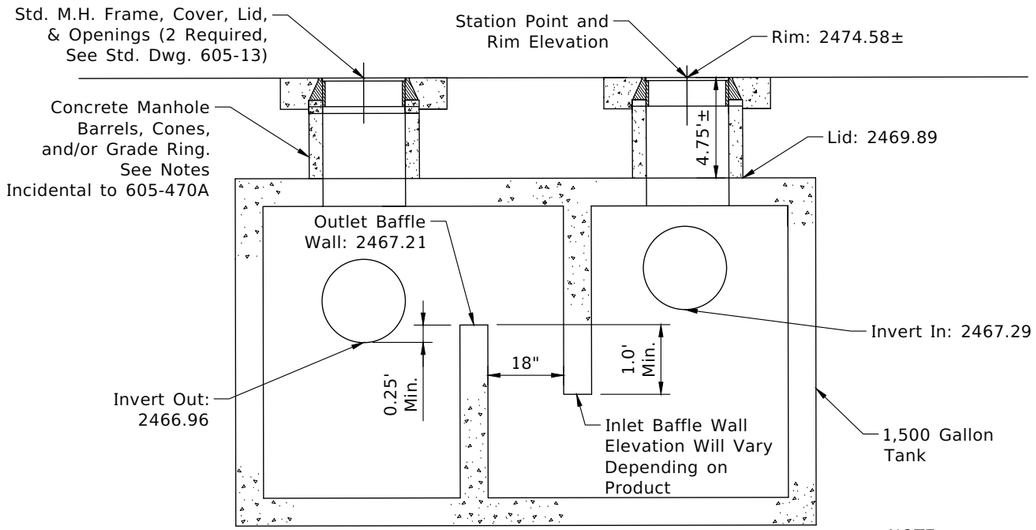
SEDIMENT & OIL TRAP MANHOLE

PAY ITEM 605-470A, Structure A0
N.T.S.

NOTE:
See Drainage Plan/Profile Sheets and Additional Drainage Details for Permanent Storm System Information.



PLAN VIEW



SECTION B-B

SEDIMENT & OIL TRAP MANHOLE

PAY ITEM 605-470A, Structure A1
N.T.S.

NOTE:
See Drainage Plan/Profile Sheets and Additional Drainage Details for Permanent Storm System Information.

NOTES:

1. Sediment & Oil Traps May Be Either Precast or Cast-In-Place. Precast Traps Shall Meet the Requirements Of ASTM C 478 And Shall Have a Design Load Meeting AASHTO HS-25 Highway Loading.
2. All Reinforcing Steel Shall be Grade 60.
3. Cast-In-Place Sediment & Oil Traps Shall Conform to Section 609 - Minor Structures of the Current ITD Standard Specifications for Highway Construction. Detailed Drawing of Precast Box or Cast-in-Place Box Design Must be Accepted by the Engineer Prior to Construction.
4. For Details on Manhole Installation Refer to ITD Standard Drawing 605-13 (Standard Manhole Frame, Cover, & Concrete Collar.)
5. Height of Outlet Baffle Wall and Length of Inlet Baffle Wall to be Designed by Contractor to Provide Max Flow Velocity of 0.5 FPS.
6. If Distance From Top of Box to Bottom of Manhole Form Exceeds 12" Use Precast Manhole Riser Rings (24" Max) and/or Precast Manhole Sections Plus a Maximum of 12" of Riser Grade Rings.
7. Provide Steps When the Distance From Top of Manhole Frame to Top of Box Exceeds 24".
8. Location and Flow Line Elevation per Design Plans.

REVISIONS			
NO.	DATE	BY	DESCRIPTION

DESIGNED K. DODD	SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
DESIGN CHECKED J. JONES	
DETAILED B. PURGANAN	CADD FILE NAME B05812042-DRDT
DRAWING CHECKED J. JONES	DRAWING DATE: APRIL 2026

IDAHO TRANSPORTATION DEPARTMENT
YOUR Safety→YOUR Mobility→YOUR Economic Opportunity
Parametrix

PROJECT NO.	DRAINAGE DETAILS
A023(731)	NORTHSIDE BLVD & KARCHER RD, NAMPA

ENGLISH
COUNTY Canyon
KEY NUMBER 23731
SHEET 52 OF 94

FILE: B05812042-DRDT LAYOUT: DRDT1 PATH: U:\Boise\Projects\Clients\5812-city of nampa\314-5812-042 northside boulevard and karcher road intersection improvements\99Svcs\CADD\DWG\Sheets PLOTTED BY: purgabut DATE: Thursday, April 9, 2026 9:23:33 AM

PROPOSED LAYOUT	
85	Storm Chambers
10	Storm End Caps
12	Stone Above (in)
9	Stone Below (in)
40	Stone Void
16696	Installed System Volume (CF) (Perimeter Stone Included) (Cover Stone Included) (Base Stone Included)
4999	System Area (SF)
340	System Perimeter (FT)

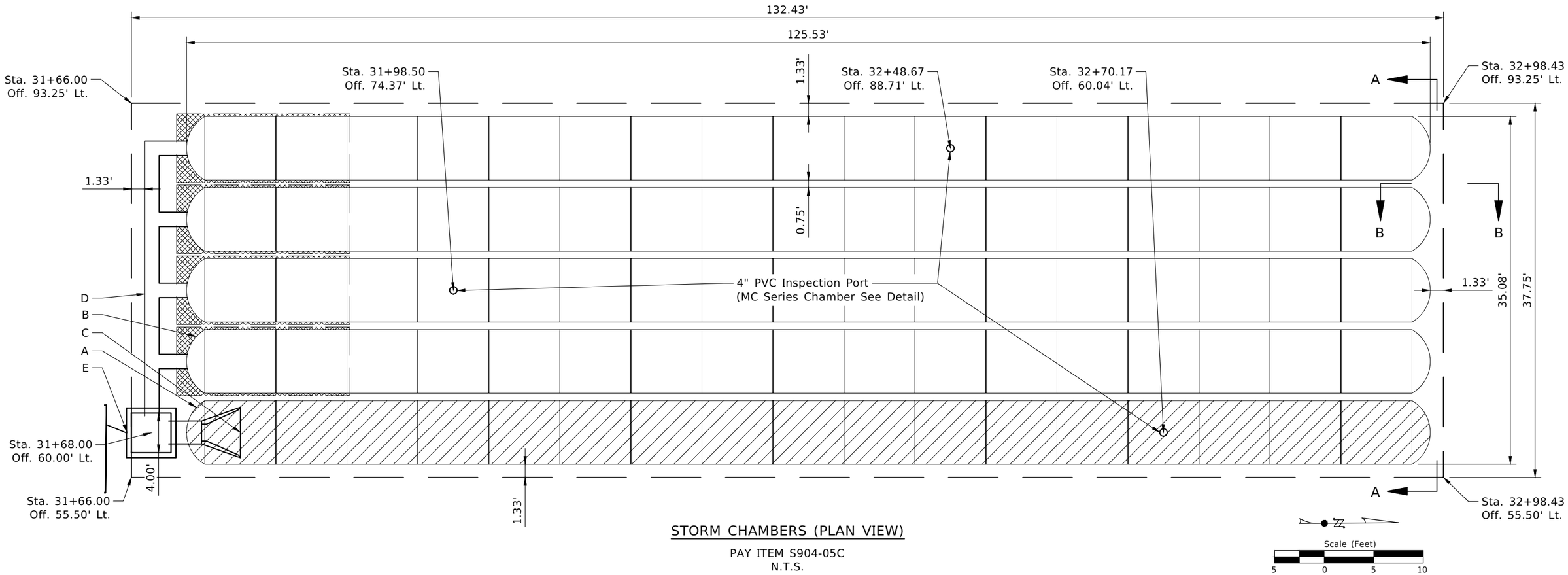
*Invert Above Base Of Chamber

PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
Prefabricated End Cap	A	24" Bottom Pre-Cored End Cap, Typ Of All 24" Bottom Connections And Isolator Plus Rows	2.06"	
Prefabricated End Cap	B	15" Top Pre-Cored End Cap, Typ Of All 15" Top Connections	23.39"	
Flamp	C	Install Flamp On 24" Access Pipe		
Manifold	D	15" X 15" Top Manifold	23.39"	
Concrete Structure	E	4' x 4' Concrete Structure Per ISPWC 2020 SD-615A		Maximum Capacity of Concrete Structure = 10.9 CFS

DESIGN CONSIDERATIONS:

1. Storage Facilities are Based on 100 Year Storm Event
   Maximum Flow 10.38 CFS (10 Min. Storm)
   Maximum Volume 14,257 CF (3 Hour Storm)
   Infiltration Rate 1.9 IN/HR

2. Conveyance Systems Based on 50 Year Storm Event
   Maximum Flow 8.70 CFS (10 Min. Storm)



STORM CHAMBERS (PLAN VIEW)

PAY ITEM S904-05C
N.T.S.

LEGEND:

Isolator Row Plus (See Detail)

Place Minimum 17.50' of ADSPLUS125 Woven Geotextile, or Approved Equal, Over Bedding Stone And Underneath Chamber Feet for Scour Protection at All Chamber Inlet Rows

Bed Limits

NOTE:

All Materials must meet BABA Requirements. Storm Chamber Design was Based on StormTech MC-3500 Configuration. Contractor may Utilize another Manufacture as an Approved Equal that Matches Storage Volume Requirements and Footprint Limitations.

REVISIONS			
NO.	DATE	BY	DESCRIPTION

DESIGNED	K. DODD
DESIGN CHECKED	J. JONES
DETAILED	B. PURGANAN
DRAWING CHECKED	J. JONES

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME BO5812042-DRDT

DRAWING DATE: APRIL 2026

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Parametrix

PROJECT NO.
A023(731)

DRAINAGE DETAILS
NORTHSIDE BLVD & KARCHER RD, NAMPA

ENGLISH

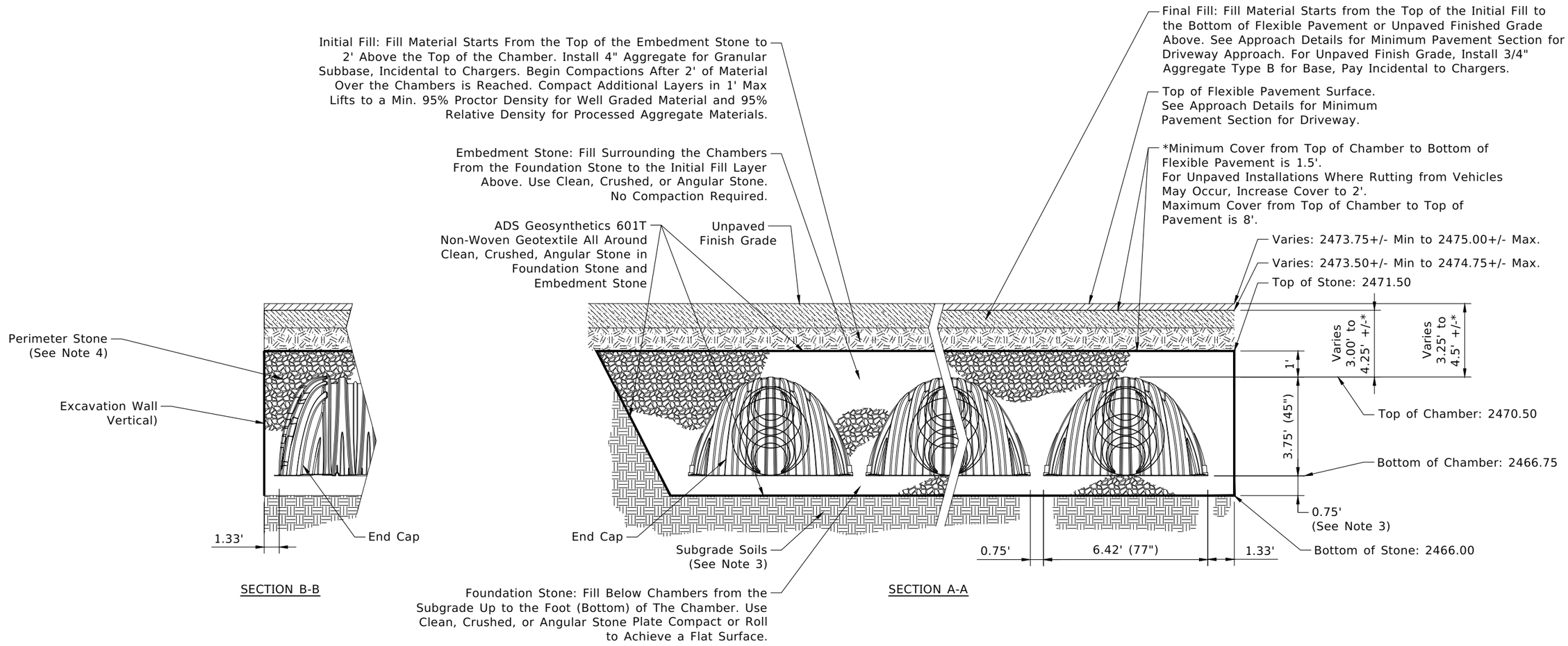
COUNTY Canyon

KEY NUMBER 23731

SHEET 53 OF 94

FILE: BO5812042-DRDT LAYOUT: DRDT2 PATH: U:\Bois\Projects\Clients\5812-city of nampa\314-5812-042 northside boulevard and karcher road intersection improvements\99Sheets\CADD\DWG\Sheets PLOTTED BY: purgabut DATE: Thursday, April 9, 2026 9:23:39 AM

FILE: B05812042-DRDT LAYOUT: DRDT3 PATH: U:\Bois\Projects\Clients\5812-city of nampa\314-5812-042 northside boulevard and karcher road intersection improvements\99Svcs\CADD\DWG\Sheets PLOTTED BY: purganbut DATE: Thursday, April 9, 2026 9:23:44 AM



SECTION B-B

SECTION A-A

SECTION AND MATERIAL DETAILS

PAY ITEM S904-05C
N.T.S.

NOTES:

1. Chambers Shall Meet the Requirements of ASTM F2418, "Standard Specification for Polypropylene (PP) Corrugated Wall Stormwater Collection Chambers" Chamber Classification 45x76 Designation SS.
2. Chambers Shall be Designed in Accordance with ASTM F2787 "Standard Practice for Structural Design of Thermoplastic Corrugated Wall Stormwater Collection Chambers".
3. The Engineer is Responsible for Assessing the Bearing Resistance (Allowable Bearing Capacity) of the Subgrade Soils and the Depth of Foundation Stone with Consideration for The Range of Expected Soil Moisture Conditions. Reference Manufacture Specifications for Bearing Capacity Guidance.
4. Perimeter Stone Must be Extended Horizontally to The Excavation Wall for Both Vertical and Sloped Excavation Walls.
5. Requirements for Handling And Installation:
   - To Maintain the Width of Chambers During Shipping and Handling, Chambers Shall Have Integral, Interlocking Stacking Lugs.
   - To Ensure a Secure Joint During Installation and Backfill, the Height of the Chamber Joint Shall not be Less Than 3”.
   - To Ensure the Integrity of the Arch Shape During Installation, A) The Arch Stiffness Constant Shall be Greater Than or Equal to 500 lbs/ft/%. The ASC is Defined in Section 6.2.8 of ASTM F2418. and B) To Resist Chamber Deformation During Installation at Elevated Temperatures (Above 73° F / 23° C), Chambers Shall be Produced From Reflective Gold or Yellow Colors.
6. Refer to Special Provisions for Details Regarding Material Classification and Compaction Requirements.

NOTE:

All Materials must meet BABA Requirements. Storm Chamber Design was Based on StormTech MC-3500 Configuration. Contractor may Utilize another Manufacture as an Approved Equal that Matches Storage Volume Requirements and Footprint Limitations.

REVISIONS			
NO.	DATE	BY	DESCRIPTION

DESIGNED K. DODD	SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
DESIGN CHECKED J. JONES	
DETAILED B. PURGANAN	CADD FILE NAME B05812042-DRDT
DRAWING CHECKED J. JONES	DRAWING DATE: APRIL 2026

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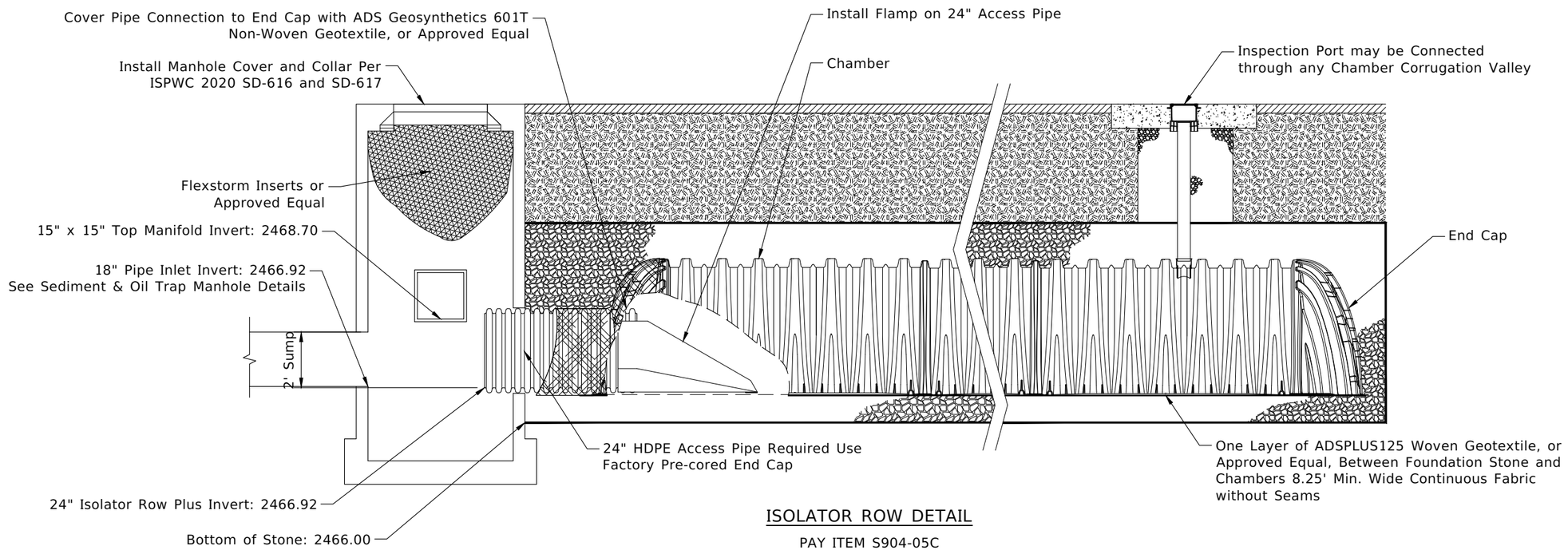
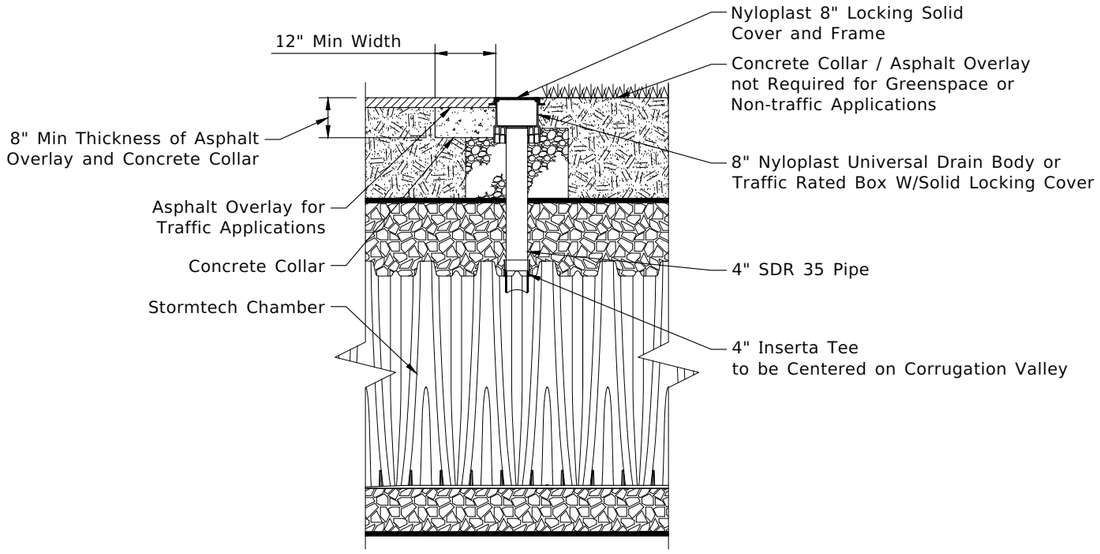


ISOLATOR ROW DETAIL

PAY ITEM S904-05C
N.T.S.



4" PVC INSPECTION PORT DETAIL

PAY ITEM S904-05C
N.T.S.

NOTES:

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Seasonal Groundwater Elevation Averages Between 2460 and 2463.

REVISIONS			
NO.	DATE	BY	DESCRIPTION

DESIGNED	K. DODD
DESIGN CHECKED	J. JONES
DETAILED	B. PURGANAN
DRAWING CHECKED	J. JONES

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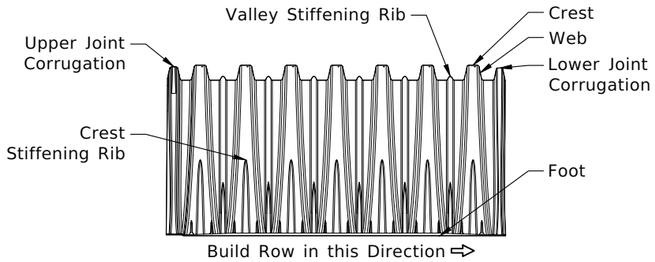
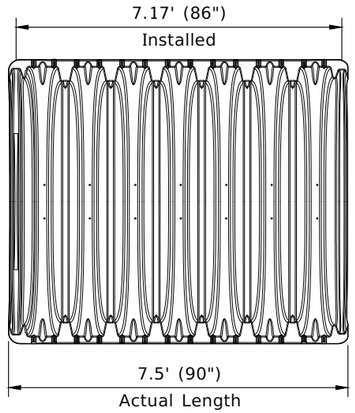
SHEET 55 OF 94

FILE: BO5812042-DRDT LAYOUT: DRDT4 PATH: U:\Boise\Projects\Clients\5812-city of nampa\314-5812-042 northside boulevard and karcher road intersection improvements\99Svcs\CADD\DWG\Sheets PLOTTED BY: purgabut DATE: Thursday, April 9, 2026 9:23:49 AM





Nominal Chamber Specifications

Size (W X H X Installed Length)	6.42' X 3.75' X 7.17'
Chamber Storage	109.9 Cubic Feet
Minimum Installed Storage*	175.0 Cubic Feet
Weight	134 Lbs.

Nominal End Cap Specifications

Size (W X H X Installed Length)	6.25' X 3.75' X 1.85'
End Cap Storage	14.9 Cubic Feet
Minimum Installed Storage*	45.1 Cubic Feet
Weight	49 Lbs.

*Assumes 1' Stone Above, 0.75' Stone Foundation, 0.5' Spacing Between Chambers, 0.5' Stone Perimeter in Front of End Caps and 40% Stone Porosity

NOTE:
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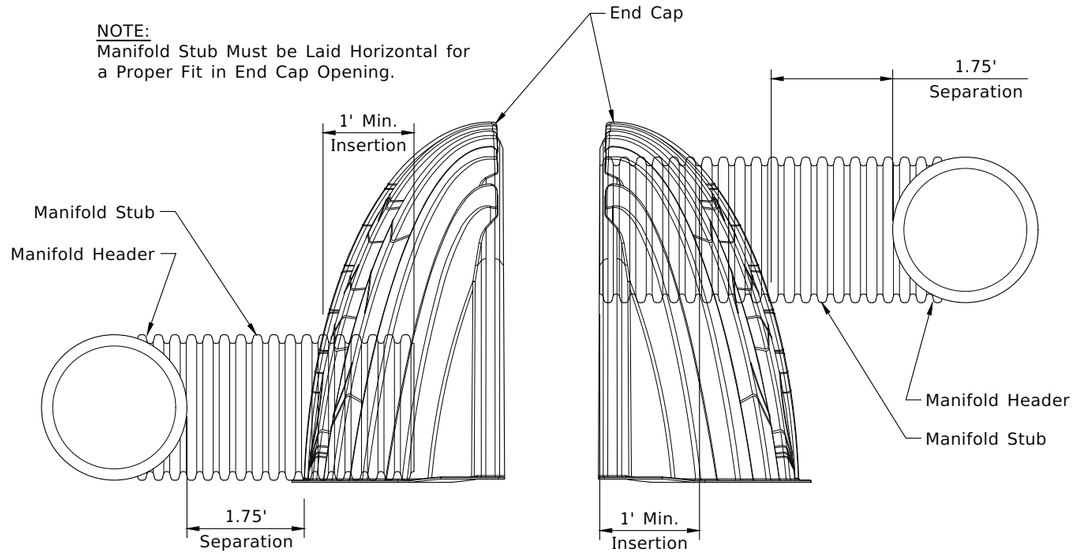
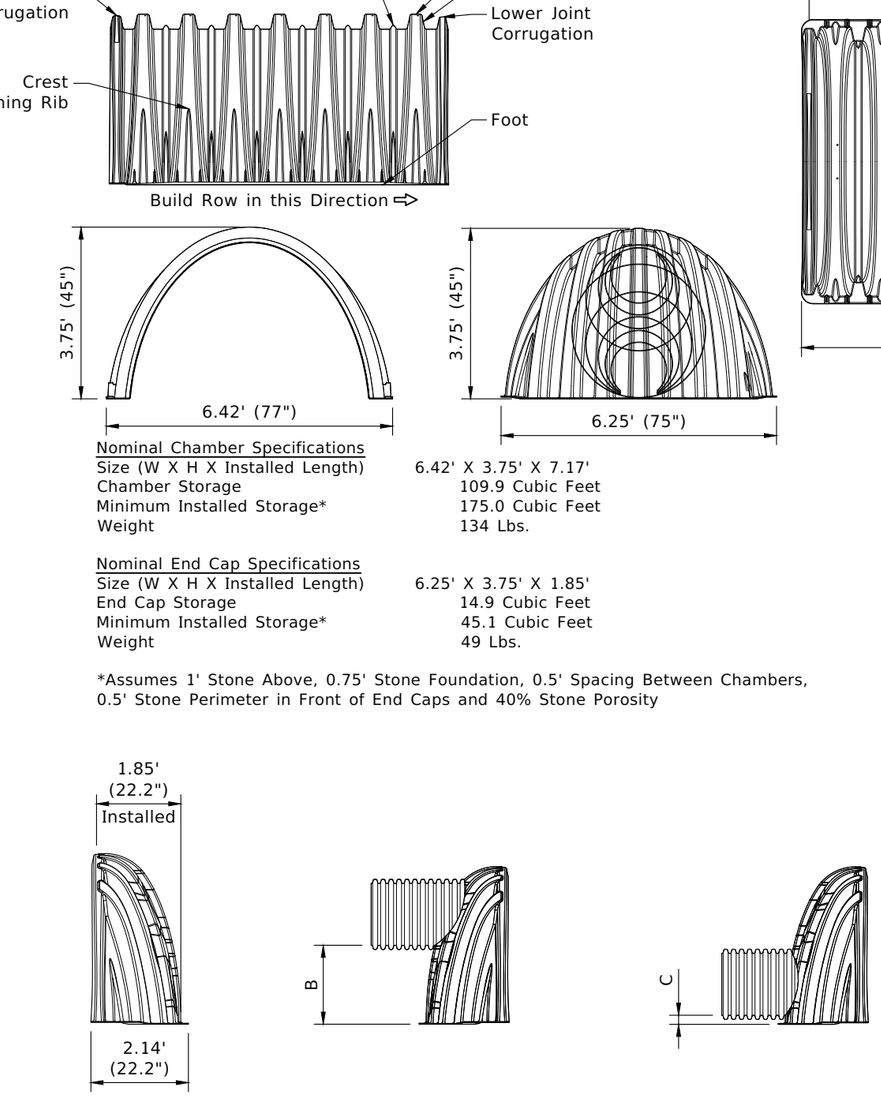


END CAP INSERTION DETAIL

PAY ITEM S904-05C
N.T.S.



Stubs at Bottom of End Cap for Part Numbers Ending With "B"
Stubs at Top of End Cap for Part Numbers Ending With "T"
End Caps With a Welded Crown Plate End With "C"
End Caps With a Prefabricated Welded Stub End With "W"

DESCRIPTION	STUB	B	C
Top of End Cap	1.25' (15")	1.95' (23.39")	---
Bottom of End Cap		---	0.13' (1.50")

Note: All Dimensions are Nominal

NOTE:
The Invert Location in Column "B" are the Highest Possible for the Pipe Size.

TECHNICAL SPECIFICATION

PAY ITEM S904-05C
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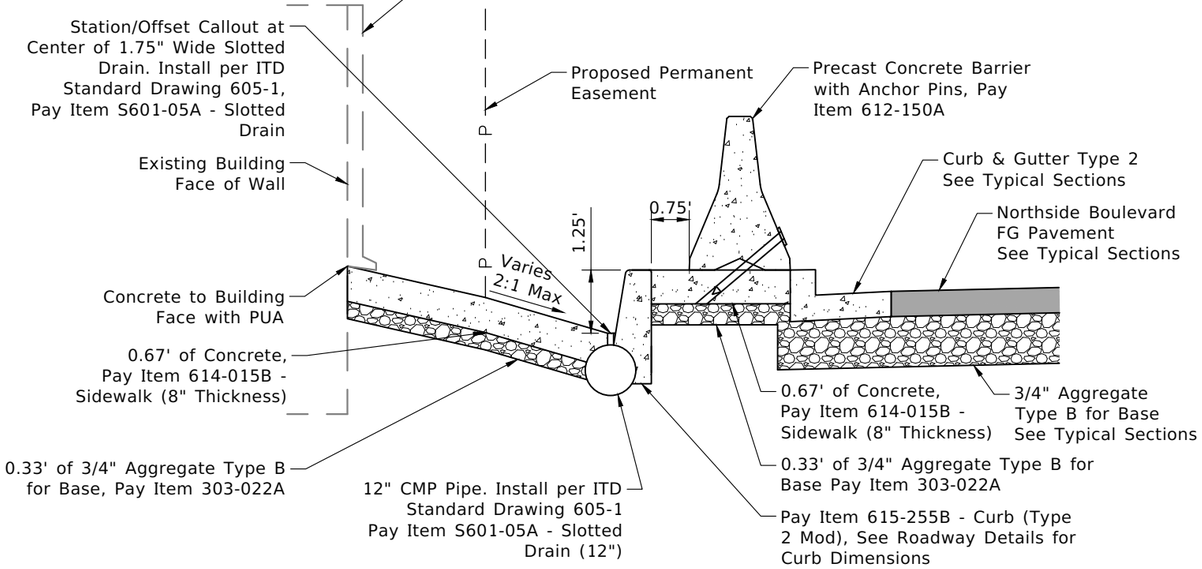

SLOTTED DRAIN SECTION

N.T.S.

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		KEY NUMBER 23731
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