

Surface Water Management Calculations for 3557 N Dixie Hwy

#### STORMWATER RETENTION CALCULATIONS

# LANDUSE BREAKDOWN

Table 1 summarizes the proposed landuse breakdown of the project

| Description                       | Existing Site (Ac) | Proposed Site (Ac) |
|-----------------------------------|--------------------|--------------------|
| Total Site Area:                  | 0.057              | 0.057              |
| Roof Area:                        | 0.000              | 0.032              |
| eck and Driveway Area (Pervious): | 0.000              | 0.025              |

#### WATER QUALITY

Water quality requirements are defined based on the following criteria: the first inch of runoff over the entire site, or 2.5 inches times the

2.5 inches times the percent impervious controls over the first inch of runoff over the entire site 2.5 inches times the percent impervious = 0.005 ac-ft (see water quality calculations attached)

### SOIL STORAGE

Soil Storage (S) was calculated to be 0.0 inches over the entire site for the Existing Conditions (see soil storage calculations attached) Soil Storage (S) was calculated to be 2.7 inches over the entire site for the Proposed Conditions (see soil storage calculations

#### RUNOFF CALCULATIONS $Q=(P-0.2S)^2/(P+0.8S)$

|   | ,                   | f.                   |                     |                  |                          |                        |                  |                          |                       |
|---|---------------------|----------------------|---------------------|------------------|--------------------------|------------------------|------------------|--------------------------|-----------------------|
|   |                     |                      | Existing            |                  |                          | Proposed               |                  |                          | $\Delta$ Pre vs Post  |
|   | Design<br>Frequency | Precipitation P (in) | Soil Storage S (in) | Runoff Q<br>(in) | Runoff Volume<br>(Ac-ft) | Soil Storage S<br>(in) | Runoff Q<br>(in) | Runoff Volume<br>(Ac-ft) | Runoff Volume (Ac-ft) |
|   | 10y-1d              | 8                    | 0                   | 8                | 0.038                    | 2.7                    | 5.48             | 0.026                    | -0.012                |
|   | 25y-3d              | 14                   | 0                   | 14.00            | 0.067                    | 2.7                    | 11.21            | 0.053                    | -0.014                |
|   | 100y-3d             | 17                   | 0                   | 17               | 0.081                    | 2.7                    | 14.14            | 0.067                    | -0.014                |
| Runoff in the proposed condition is less that the existing conditions. Exfiltration trench is proposed for storage purposes (for FFE) |                     |                      |                     |                  |                          |                        |                  |                          |                       |

#### EXFILTRATION TRENCH CALCULATIONS

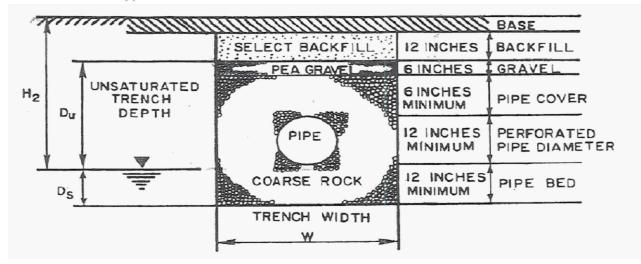
Water Table Elevation: 2.0 FT NAVD

Average Finished Grade for Trench Purposes 7.0 FT NAVD Exfiltration Trench Length = Volume /  $(K(H2*W + 2*H2*Du - Du^2 + 2*H2*Ds) + (1.39E-4*W*Du))$ 

> 35 Ft - Length of trench required 0.77 Acre-inch - Volume treated 4 Ft - Trench Width 3.065E-04 CFS/FT^2-Ft. Head - Hydraulic Conductivity (See attached Soil Percolation Tests Report)

5.0 Ft - Depth to Water Table 4.0 Ft - Non-Saturated Trench Depth 2.0 Ft - Saturated Trench Depth

#### SFWMD - Typical Exfiltration Trench Section

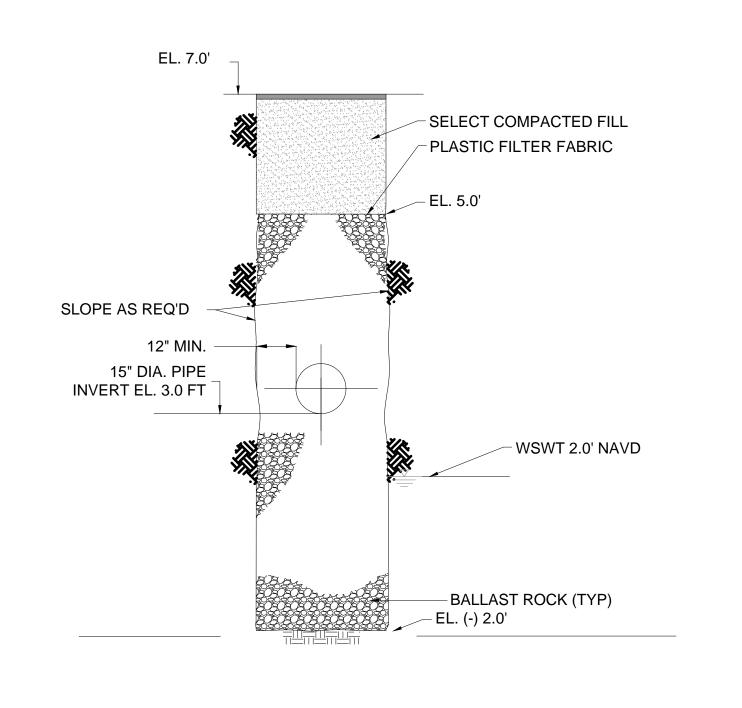


#### Length of Trench Required = 35 Ft (0.064 ac-ft) Length of Trench Provided = 35 Ft (0.064 ac-ft)

## STAGE STORAGE

|                         |                    | Proposed   |                   |                        |                     |                                   |               |
|-------------------------|--------------------|------------|-------------------|------------------------|---------------------|-----------------------------------|---------------|
| Stage<br>(ft NGVD)      | Impervious (ac-ft) | Pervious ( | Ac- Total (Ac-ft) | Impervious (Ac-<br>ft) | Pervious<br>(ac-ft) | Exfiltration<br>Trench<br>(Ac-ft) | Total (Ac-ft) |
| 6.00                    | 0.00               | 0.00       | 0.00              | 0.00                   | 0.00                | 0.77                              | 0.77          |
| 6.50                    | 0.01               | 0.00       | 0.01              | 0.00                   | 0.00                | 0.77                              | 0.77          |
| 7.00                    | 0.04               | 0.00       | 0.04              | 0.00                   | 0.01                | 0.77                              | 0.78          |
| 7.50                    | 0.07               | 0.00       | 0.07              | 0.00                   | 0.02                | 0.77                              | 0.79          |
| 8.00                    | 0.10               | 0.00       | 0.10              | 0.00                   | 0.03                | 0.77                              | 0.80          |
| Peak Stage<br>10y - 1d  |                    | 6.30       |                   |                        |                     |                                   |               |
| Peak Stage<br>25y - 3d  |                    | 6.30       |                   |                        |                     |                                   |               |
| Peak Stage<br>100y - 3d |                    | 6.68       |                   |                        |                     |                                   |               |

Proposed FFE is 7.0, above 100y-3d peak elevation - OK



LEGEND

-----PROPERTY LINE

EXISTING ELEVATION

PROPOSED ELEVATION

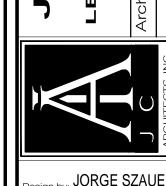
PROPOSED PERVIOUS PAVERS

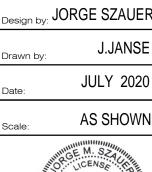
### EXFILTRATION TRENCH

|     | 1   |  |
|-----|-----|--|
| NTS | STD |  |

NEW









Sheet No. PAVING, GRADING & DRAINAGE

C-01