

**DISTRICT OF COLUMBIA
BOARD OF ZONING ADJUSTMENT**

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KOO L. YUEN
Appellant

v.

**DISTRICT OF COLUMBIA DEPARTMENT
OF CONSUMER & REGULATORY AFFAIRS**
Appellee

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:

BZA Appeal No. **17988**

APPELLANT'S SUBMISSION FOR HEARING NOVEMBER 17, 2009 AT 1:00 PM

In addition to the matters set forth in the Appeal and the Motion for Summary Judgment, the Appellant submits the following:

ESTOPPEL

The revocation of the building permit is barred by estoppel. The original application, which is an exhibit hereto, clearly states that the scope of work is for renovation of a gasoline station building and for installation of gasoline station tanks, pumps, pump island, canopy and other related installations.

In reasonable reliance on the issuance of the permit, the Appellant commenced substantial work on the site, including ordering underground gasoline storage tanks, site work and the like.

Estoppel is a bar to municipal action where, as here, the Appellant

1. Is acting in good faith;
2. On the affirmative act of a municipal corporation;
3. Made extensive and permanent improvements in reliance thereon; and
4. The equities strongly favor the Appellant.

Saah v. District of Columbia Board of Zoning Adjustments, 433 A.2d 1114 (1981)(copy

BOARD OF ZONING ADJUSTMENT
District of Columbia

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CASE NO. 17988

EXHIBIT NO. 19

Board of Zoning Adjustment
District of Columbia
CASE NO. 17988
EXHIBIT NO. 19

attached), as quoted in Citizens Assn. Of Georgetown, Appeal No. 13295 (BZA, 1983)(copy attached) and H.J. Biens Appeal No. 14093 (BZA 1984)(copy attached).

In the instant case, the Zoning Administrator is attempting to overturn a fully approved building plan for the site after a substantial amount of construction has occurred, including permanent improvements to the site. The property had previously been granted a special exception for a gasoline station and an occupancy permit had been issued for the gas station.

DOCUMENTS

1. All documents attached to the Appeal
2. All documents attached to the Motion for Summary Judgment
3. The Order granting Special Exception to establish a gasoline station on the site (copy attached hereto)
4. The application for a building permit (copy attached hereto)
5. The plans for the site, including the District of Columbia Office of the Surveyor review dated September 2007 (submitted herewith).

Respectfully submitted,

/s/ Thomas F. DeCaro, Jr. 

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CERTIFICATE OF SERVICE

I, Thomas F. DeCaro, Jr. do hereby certify that on November 2, 2009, I did mail, postage prepaid, a copy of the foregoing

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/S/ Thomas F. DeCaro, Jr.
Thomas F. DeCaro, Jr.

Westlaw.

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▷

District of Columbia Court of Appeals.
John SAAH, Petitioner,
v.
DISTRICT OF COLUMBIA BOARD OF ZONING
ADJUSTMENT, Respondent.
No. 80-88.

Argued April 16, 1981.
Decided July 29, 1981.

Applicant for zoning variance petitioned for review of a decision of the District of Columbia Board of Zoning Adjustment denying plaintiff variance that would permit him to retain a structure which exceeds maximum allowable percentage of occupancy. The Court of Appeals, Kelly, J., held that the Board of Zoning Adjustment, having approved but later cancelled applicant's building permit, was estopped from denying the variance sought by applicant.

Reversed and remanded.

West Headnotes

[1] Zoning and Planning 414 ⚡ 762

414 Zoning and Planning
414XI Enforcement of Regulations
414XI(A) In General
414k762 k. Defenses to Enforcement.
Most Cited Cases

Elements that must be shown in order to raise an estoppel against enforcement of a zoning regulation are that a party, acting in good faith, on affirmative acts of a municipal corporation, makes expensive and permanent improvements in reliance thereon, and the equities strongly favor the party seeking to invoke the doctrine.

[2] Administrative Law and Procedure 15A ⚡ 791

15A Administrative Law and Procedure
15AV Judicial Review of Administrative Decisions

15AV(E) Particular Questions, Review of
15Ak784 Fact Questions
15Ak791 k. Substantial Evidence.

Most Cited Cases

Given the expertise of an administrative agency, the Court of Appeals is generally bound by agency's decision if it is supported by, and in accordance with, reliable, probative and substantial evidence in the whole record, and the agency's conclusions flow rationally from its findings.

[3] Administrative Law and Procedure 15A ⚡ 796

15A Administrative Law and Procedure
15AV Judicial Review of Administrative Decisions

15AV(E) Particular Questions, Review of
15Ak796 k. Law Questions in General.

Most Cited Cases

Where administrative agency's final decision rests on a question of law, reviewing court has the greater expertise, and the agency decision is therefore accorded less deference.

[4] Zoning and Planning 414 ⚡ 488

414 Zoning and Planning
414IX Variances or Exceptions
414IX(A) In General
414k488 k. Right to Variance or Exception, and Discretion. Most Cited Cases
Board of Zoning Adjustment, having approved but later cancelled building permit to convert single-family dwelling into three apartments on grounds that structure exceeded maximum lot occupancy applicable in that zone, was estopped from denying owner's application for a variance where owner had undertaken construction in reliance upon issuance of permit, cost of complying with regulations was substantial, and public's interest in enforcement of

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lot occupancy restriction was minimal in that owner exceeded maximum lot occupancy by less than five percent.

*1114 Donald Cefaratti, Jr., Washington, D.C., for petitioner.

Leo N. Gorman, Asst. Corp. Counsel, Washington, D.C., with whom Judith W. Rogers, Corp. Counsel, and Charles L. Reischel, Deputy Corp. Counsel, Washington, D.C., were on the brief, for respondent.

Before KELLY, FERREN and PRYOR, Associate Judges.

*1115 KELLY, Associate Judge:

In this case we are called upon to review a decision of the Board of Zoning Adjustment denying petitioner a variance that would permit him to retain a structure which exceeds the maximum allowable percentage of lot occupancy. We hold that the zoning authorities, having approved, but later cancelled petitioner's building permit, are estopped from denying the variance sought. Therefore, we reverse, and remand for disposition of petitioner's application in accordance with this opinion.

I

Petitioner is the owner of improved property located at 1521 Church Street, N.W., within an R-5-B District. He purchased this property on March 15, 1978, at which time the lot contained a single family dwelling consisting of two stories and a basement, with a certificate of occupancy, issued July 22, 1952, permitting use of the second floor as a tenement house. On May 9, 1978, a building permit was issued allowing petitioner to renovate the structure to include three apartments. Construction was proceeding according to plan when, in September of 1978, the rear half of the building collapsed. Petitioner was then advised by a structural engineer to replace the original masonry walls above the first

floor. New plans were prepared for the renovation, and new building permits were sought from the city government. On September 8, 1978, two permits were issued to petitioner: the first was for an "addition to a three story apartment house brick/frame as per applicant's plan and plat," and the second permit covered revision of the permit originally issued on May 9, 1978. Petitioner again began construction.

More than two months later, on November 17, 1978, the two permits were cancelled and petitioner was directed to cease work on the ground that approval for the permits had been erroneously granted. The problem, which, if it had been discovered in September, would have precluded approval of the plans in the form in which they were submitted at that time, was that the structure exceeded, by 123.91 square feet, the maximum lot occupancy of 60% applicable in the R-5-B zone.[FN1] The reason the permits had been approved in September was that in computing the area covered by the proposed structure, a passageway alongside the east side of the first floor of the building was not taken into account. The passageway is not enclosed at either end; however, the second and third floors project over the passageway and abut the western wall of the building next door. The maximum lot occupancy for petitioner's property is 1,254 square feet. Before renovation the structure covered 1,037 square feet; when the new construction is included, adding the projection over the passageway, the structure covers an additional 340.91 square feet. Thus, the total lot occupancy is then 1,337 square feet, or somewhat less than 65%. The Board found that at the time the permits were cancelled the renovation was 60% complete.

FN1. District of Columbia Zoning Regulations 3303.1.

On November 30, 1978, the Corporation Counsel, in a memorandum to the Acting Chief of the Zoning Regulations Division, stated that the "circumstances establish sufficient elements of an estoppel to require the District Government to set

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aside the direction to cease work, pending timely application for an area variance." In Corporation Counsel's view, not all elements of an estoppel, in particular reasonable reliance, had yet been established, and a formal hearing was thought to be necessary to make that determination.

On December 8, 1978, petitioner was informed by letter that the order to cease work was lifted, provided (1) an application for an area variance was filed by December 15, and (2) a revision permit was secured authorizing construction of a rear-entry way not shown on the original plans. Petitioner made timely filing of the application for an area variance on December 15, 1978, and, after several hearings before the Board of Zoning Adjustment, the application was denied on January 4, 1980.

*1116 II

Although the doctrine of equitable estoppel has traditionally not been favored when sought to be applied against a government entity, see Note, Equitable Estoppel of the Government, 79 Colum.Law Rev. 551, 552-54 (1979), it is accepted that in certain circumstances an estoppel may be raised to prevent enforcement of municipal zoning ordinances. *District of Columbia v. Cahill*, 60 U.S.App.D.C. 342, 54 F.2d 453 (1931); see *Wieck v. District of Columbia Board of Zoning Adjustment*, D.C.App., 383 A.2d 7, 11 (1978); A. Rathkopf, *The Law of Zoning and Planning*, ch. 67, s 2 (4th ed. 1980).

[1] The elements that must be shown in order to raise an estoppel against enforcement of a zoning regulation are: (1) that a party, acting in good faith, (2) on affirmative acts of a municipal corporation, (3) makes expensive and permanent improvements in reliance thereon, and (4) the equities strongly favor the party seeking to invoke the doctrine. *Wieck v. District of Columbia Board of Zoning Adjustment*, supra, at 11. Furthermore, we held in *Nathanson v. District of Columbia Board of Zoning Adjustment*, D.C.App., 289 A.2d 881, 884 (1972), that

reliance by the party must be justified.

[2][3][4] The Board concluded that in this case some, but not all, of the above elements were present. Given the expertise of an administrative agency, we are generally bound by its decision if it is supported by, and in accordance with, reliable, probative and substantial evidence in the whole record, and the agency's conclusions flow rationally from its findings. *Stewart v. Board of Zoning Adjustment*, D.C.App., 305 A.2d 516 (1973). However, where the agency's final decision rests on a question of law, the reviewing court has the greater expertise, and the agency decision is therefore accorded less deference. See *Gordon v. District Unemployment Compensation Board*, D.C.App., 402 A.2d 1251, 1254 (1979); B. Mezones, J. Stein & J. Gruff, *Administrative Law* s 51.01 (1977); F. Cooper, *State Administrative Law*, vol. 2, at 706-07, 721-22 (1965). Based upon the facts established in this case we hold the Board erred in concluding the elements of an estoppel were not present.

III

The affirmative act of the District of Columbia, upon which petitioner relied in constructing the building, was the issuance of the permits on September 8, 1978. There is no allegation that the plans that were approved on that day were submitted in bad faith. Respondent does contend that petitioner failed to establish that he made expensive and permanent improvements relying upon the issuance of the permits. We disagree. The Board specifically found that "(a) s of November 17, 1978, approximately 60% of the building had been completed." (Finding No. 13). That is a substantial portion of the total project and, even without documentary evidence indicating the precise amount of money expended up to that point, the Board's finding must be considered sufficient to satisfy the requirement of expensive repairs of a permanent nature, given that petitioner had undertaken a major reconstruction of the building, including replace-

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ment of masonry walls above the first floor. Furthermore, although neither side has referred to it, there was the unchallenged testimony of petitioner that he had expended "over \$225,000 building that building" and that the cost of complying with the regulations would be "about \$110,000."

Respondent argues petitioner's reliance upon the permits in beginning work was not justified. In *Nathanson v. District of Columbia Board of Zoning Adjustment*, supra, we held estoppel was not available to a party who sought to prevent enforcement of a condition that a 42 inch masonry wall be constructed even though the building permit issued for construction of the storage facility did not mention the wall. We rejected the assertion that reliance on the building permit was justified, since the party had had actual notice of the condition when a preliminary order granting a special exception was issued six weeks earlier. Recently, we held in *1117 *Interdonato v. District of Columbia Board of Zoning Adjustment*, D.C.App., 429 A.2d 1000 (1981), that petitioners could not have justifiably or reasonably relied upon a Board order which they were fully aware was under appeal and therefore not yet final.

In the instant case, it can at most only be argued that petitioner, or his architect, should have known that the project, as presented in September, exceeded the maximum lot occupancy. However, the same can be said for the official who approved the plans, and we will not go so far as to decide that any of them were negligent in failing to discover the problem at that time. In hindsight, there is no question that the portion of the upper floors which extends over the passageway must be included in calculating the percentage of the lot occupied by the structure.[FN2] Nevertheless, we do not consider petitioner's reliance upon approval of the permit applications to have been unjustified.

FN2. We accept the Board's finding No. 26 that the definitions of "percentage of lot occupancy" and "building area" contained in s 1202 of the Zoning Regulations make

it obvious that "the area on the east side of the subject lot covered by the building at the second and third stories must be included in the percentage of lot occupancy."

The final element of estoppel that must be considered is whether the equities strongly favor petitioner. We are certain that they do. Petitioner has expended significant amounts of money and effort on this project, both at the construction site and before the Board. If the Board were not estopped from enforcing the maximum lot occupancy in this case, petitioner would be compelled to undertake substantial reconstruction and perhaps dismantle the entire building. Equity, which will not require a wasteful act, will not permit such a result where the public's interest in enforcement is only minimal,[FN3] as it is here, where petitioner exceeds the maximum lot occupancy by less than 5%.

FN3. Although estoppel is judicially disfavored in zoning cases because of the important public interest in the enforcement and integrity of Zoning Regulations, *Interdonato v. District of Columbia Board of Zoning Adjustment*, supra, we are satisfied the injury to the public in this case will be minimal. At the hearings before the Board, the objections raised to petitioner's structure related to its effect on the property next door. We decide only that the Board of Zoning Adjustment is estopped from enforcing the regulation, and do not reach the question of the effect of the estoppel on a claim made by a neighboring landowner. See *Goto v. District of Columbia Board of Zoning Adjustment*, D.C.App., 423 A.2d 917, 925 n.15 (1980).

Therefore, for the above reasons, we hold the Board of Zoning Adjustment is estopped from denying petitioner's application for a variance permitting the structure at 1521 Church Street to exceed by 123.91 feet the maximum percentage of lot occupancy.

Reversed and remanded.

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D.C., 1981.
Saah v. District of Columbia Bd. of Zoning Adjust-
ment
433 A.2d 1114

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GOVERNMENT OF THE DISTRICT OF COLUMBIA
BOARD OF ZONING ADJUSTMENT



Appeal No. 13925, of the Citizens Association of Georgetown, pursuant to Sections 8102 and 8206 of the Zoning Regulations, from the decision of James J. Fahey, Zoning Administrator, made on August 25, 1982, approving a building permit to convert a single family row dwelling into a flat in an R-3 District at premises 1221 - 33rd Street, N.W., (Square 1206, Lot 812).

HEARING DATE: March 16, 1983

DECISION DATE: March 16, 1983 (Bench Decision)

FINDINGS OF FACT:

1. The subject appeal was filed on December 20, 1982, by the Citizens Association of Georgetown (CAG) to challenge the decision of the Zoning Administrator approving a building permit to renovate the subject structure as a flat. The subject property is located in an R-3 District.

2. The owner of the property, First Maryland Financial Services Corporation (First Maryland), through counsel, appeared as a party pursuant to Rule 100.7 of the Supplemental Rules of Practice and Procedure before the Board of Zoning Adjustment.

3. As a preliminary matter, the Board considered a motion by counsel for the owner to dismiss the appeal. The motion to dismiss the appeal was based on the following grounds:

- a. The Board of Zoning Adjustment lacks jurisdiction to hear the case.
- b. The CAG lacks standing to prosecute the appeal.
- c. The CAG does not contest the basis of the Zoning Administrator's decision.
- d. The District of Columbia Government is estopped from revoking or suspending the previously approved permits for renovation and use of the subject structure as a flat.
- e. The appeal is barred by laches.

4. The first argument considered by the Board in support of the motion to dismiss was the issue of estoppel. The elements of estoppel, as set forth by the D.C. Court of Appeals in Saah v. D.C. Board of Zoning Adjustment, 433 A.2d 1114 (D.C. 1981) are as follows:

- a. A party, acting in good faith;
- b. On the affirmative acts of a municipal corporation;
- c. Makes expensive and permanent improvements in reliance thereon; and
- d. The equities strongly favor the party seeking to invoke the doctrine.

5. The subject property was sold to and purchased by First Maryland as a two-family dwelling. The property contained two units at the time of purchase and the purchase was made for the purpose of renovation and sale as a flat.

6. Acting in good faith, based on the representations of the seller and the concurrence of the architect hired by the owner to design the renovation of the structure that the structure contained two units, the owner purchased the property and made expensive and permanent improvements to the building configured as two units, for eventual resale as a flat. The cost of the improvements was approximately \$76,500.

7. As a two-family dwelling, the owner expected the structure to be resold for approximately \$250,000. If the building were sold as a single family dwelling, extensive remodelling would be necessary to reconfigure the interior of the structure as one unit and the selling price would be reduced to approximately \$170,000. The owner would suffer a substantial loss due to the expenditures already invested in the purchase and rehabilitation of the structure, the additional expense of redesigning the building as a single unit, and the reduction in selling price resulting from its change from a flat to a single family dwelling.

8. When he, was first retained to design the renovations, the owner's architect inspected the property and ascertained that it contained two units. On July 8, 1982, he was informed by an employee of the Office of the Zoning Administrator that the property was located in a C-2-A District. A flat is a use permitted as a matter-of-right in a C-2-A District.

9. The architect subsequently drew plans for the proposed renovation and submitted those plans as part of permit applications on August 25, 1982. On that date, the

zoning was rechecked in the Office of the Zoning Administrator and again determined to be C-2-A.

10. On the basis of that determination, permits for demolition, repair and alteration, plumbing and electrical work were issued. An application for a certificate of occupancy was also approved but was not issued pending the substantial completion of the proposed renovation and the inspection of the premises.

11. On the basis of the approved permits, extensive renovation to the structure was undertaken and completed in December, 1982.

12. The owner was unaware of a question as to the use or zoning of the structure until January 6, 1983, when it was appraised by the Office of the Zoning Secretariat that the subject appeal had been filed. Renovation of the subject structure was complete on that date.

13. A representative of the appellant testified that on the application for a certificate of occupancy, the owner's architect recorded that the previous use of the property was as a single-family dwelling, rather than a flat.

14. In rebuttal, the architect testified that there was no certificate of occupancy on record for the subject property at the time the application was filed. The only lawful use permitted without a certificate of occupancy is a single family dwelling. The architect therefore listed the only lawful use of the premises, even though he knew that the actual use had been a flat.

15. There was no report for Advisory Neighborhood Commission 3A.

CONCLUSIONS OF LAW AND OPINION:

Based on the foregoing facts, the Board concludes that the elements of estoppel, as outlined in Finding of Fact No. 4 are in existence in the subject case. The record evidences that the owner acted in good faith, in reliance on the affirmative acts of the District of Columbia Government and made expensive and permanent improvements to the subject building. The equities favor the owner of the property in this case.

Accordingly, it is ORDERED that the appeal is DISMISSED on the grounds that the District of Columbia is estopped from revoking the issued permits. Further motions by the owner are therefore moot and the Board makes no findings or conclusions thereon. No further action by the Board on the subject appeal is necessary.

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VOTE: 4-0 (Douglas J. Patton, Carrie Thornhill, Maybelle
T. Bennett and Charles R. Norris to DISMISS;
William F. McIntosh abstaining).

BY ORDER OF THE D.C. BOARD OF ZONING ADJUSTMENT

ATTESTED BY:


STEVEN E. SHER
Executive Director

FINAL DATE OF ORDER: JUL 25 1983

UNDER SUB-SECTION 8204.3 OF THE ZONING REGULATIONS, "NO
DECISION OR ORDER OF THE BOARD SHALL TAKE EFFECT UNTIL TEN
DAYS AFTER HAVING BECOME FINAL PURSUANT TO THE SUPPLEMENTAL
RULES OF PRACTICE AND PROCEDURE BEFORE THE BOARD OF ZONING
ADJUSTMENT."

13925order/BETTY7

GOVERNMENT OF THE DISTRICT OF COLUMBIA
BOARD OF ZONING ADJUSTMENT



Appeal No. 14093, of Hugh J. Beins, pursuant to Sections 8102 and 8206 of the Zoning Regulations, from the decision of the Zoning Administrator, dated August 23, 1983, approving the issuance of Building Permit No. B297556 for the construction of a rear addition and from the decision made on October 27, 1983, to rescind a stop work order and allow the construction to continue at 3813 Jocelyn Street, N.W., in an R-1-B District (Square 1856, Lot 54).

HEARING DATES: February 8 and 15, 1984
DECISION DATE: February 15, 1984 (Bench Decision)

FINDINGS OF FACT:

1. The property which is the subject of this appeal is located on the north side of Jocelyn Street, N.W., between 38th and 39th Streets and is known as premises 3813 Jocelyn Street, N.W. The property is improved with a two-story plus basement single family dwelling.
2. The subject appeal was filed on November 28, 1983, by property owners residing at 3812 Kanawha Street, N.W., immediately to the north of the subject property, across a twelve foot wide public alley.
3. The subject appeal challenges the decision of the Zoning Administrator approving Building Permit No. B-297556, dated August 22, 1983, allowing the construction of a rear addition at premises 3813 Jocelyn Street, N.W. and the rescission, on October 27, 1983, of a stop work order, dated October 26, 1983, allowing construction to continue.
4. The bases for the subject appeal are as follows:
 - A. The permit was erroneously issued.
 - B. The stop work order was improperly rescinded.
 - C. There was a violation of due process by failure to give notice and a hearing at any time, including the meeting of October 27, 1983.
 - D. Portions of the construction are in violation of the twenty-five foot rear yard requirement.

- E. The Construction is in violation of the Zoning Regulations governing enlargement, expansion or extension of existing non-conforming structures or uses.

5. The owners of the subject property appeared as a party to the case, pursuant to Section 100.7 of the Supplemental Rules of Practice and Procedure before the Board of Zoning Adjustment.

6. As a preliminary matter, the Board considered a motion by counsel for the owners to dismiss the appeal. The motion to dismiss the appeal was based on the following grounds:

- A. The Government of the District of Columbia is estopped from revoking the building permit issued for construction of an addition and other work; and,

- B. The appeal is barred by laches.

7. The first argument considered by the Board in support of the motion to dismiss was the issue of estoppel. The elements of estoppel, as set forth by the D.C. Court of Appeals in Saah v. D.C. Board of Zoning Adjustment, 433 A.2d 1114 (D.C. App., 1981) are as follows:

- A. A party, acting in good faith;
- B. On the affirmative acts of a municipal corporation;
- C. Makes expensive and permanent improvements in reliance thereon; and,
- D. The equities strongly favor the party seeking to invoke the doctrine.

8. In approximately March, 1983, the owners hired a designer to develop a proposal to enlarge an existing family room, remove the existing deck, construct a new deck, enlarge the existing kitchen and to create an interior hallway connecting the kitchen to the family room.

9. On May 6, 1983, after the plans for the proposed changes were drawn by the designer and approved by the owners, the designer reviewed the preliminary drawings with staff of the Zoning Review Branch, Department of Consumer and Regulatory Affairs, for compliance with the Zoning Regulations. After review of the drawings, the designer was informed that the design conformed with the applicable provisions of the Zoning Regulations as interpreted by that office.

10. On May 10, 1983, the designer and the owner again reviewed the proposed design with staff of the Zoning Review Branch. After the second review of the drawings, the designer and owner were again informed that the design met the applicable provisions of the Zoning Regulations.

11. Subsequent to May 10, 1983, the designer was retained by the owners to prepare the detailed plans for the proposed improvements necessary for the issuance of the appropriate building permits.

12. The final plans were prepared and submitted with an application for a building permit on August 22, 1983. The plans were reviewed and approved by all appropriate officials, including zoning, and Building Permit No. B-297556 was issued on that same day.

13. The owners, acting in good faith and in reliance upon the approved building permit, accepted bids on the proposed construction, selected a contractor, and secured financing to proceed with the project.

14. Construction began on October 24, 1983, with the demolition of the existing family room and deck. The owners for the project, hired a general contractor, and entered into contracts or binding commitments for custom-made materials for an overall financial obligation of between \$70,000 and \$80,000.

15. Subsequent to the commencement of work on the project, the appellants contacted various representatives of the D.C. Government in an effort to discover the nature of the construction on the subject property.

16. The appellants met with the Deputy Zoning Administrator on October 26, 1983, and protested the issuance of the subject building permit without notice to the appellants as neighboring property owners and as violating the Zoning Regulations, specifically with regard to the rear yard requirements.

17. By letter dated October 26, 1983, the Deputy Zoning Administrator advised the owners' designer that a review of the plans approved under Building Permit No. B-297556 disclosed a possible problem with the required rear yard. A copy of that letter was also sent to the owners of the subject property.

18. The Deputy Zoning Administrator instructed the Chief of the Construction Inspection Branch, by memorandum dated October 26, 1983, to issue a stop work order on the subject premises "until issues relative to the rear yard are resolved."

19. A stop work order was issued on October 27, 1983. At that time, demolition of the family room and deck were virtually completed.

20. On October 27, 1983, the owners and their designer met with the Zoning Administrator and an Assistant Corporation Counsel. The owners detailed the steps taken by them to ensure compliance with zoning, the nature and extent of the work completed to that date, and the financial obligations incurred in reliance upon the issuance of the building permit.

21. At the conclusion of that meeting, the Zoning Administrator advised the owners that work on the project could continue and the stop work order was rescinded.

22. The appellants were advised by the Deputy Zoning Administrator of the results of the October 27th meeting between the owners and the Zoning Administrator on November 3, 1983. The subject appeal was filed on November 28, 1983.

23. The owners received notice of the filing of the subject appeal on December 6, 1983, by letter dated November 30, 1983, from the Executive Director of the Zoning Secretariat.

24. The appellant testified that on November 28, 1983, when the appeal was filed, less than fifty percent of the construction had been completed. The appellant submitted photographs which were purportedly taken on November 26, 1983, evidencing that construction, at that time, consisted of the erection of the wooden joists for the deck, the replacement of garage doors with a standard three feet door, and the frame structure for the family room addition.

25. One of the owners of the property testified that on November 28, 1983, the demolition of the previously existing family room and deck had been completed and siding had been removed from the wall adjacent to the kitchen. The new family room had been completed except for the installation of wall board, and floor-to-ceiling glass windows. The electrical, air conditioning and heating systems had been installed. The roof had been put on, the deck had been completed except for the stairs. The new hallway to the kitchen had been built.

26. The Zoning Administrator testified that he had no records which would indicate the extent of construction which had been completed as of November 28, 1984.

27. Counsel for the owners proffered that the evidence as to the extent of the construction completed as of November 28, 1983, was not objective in that the date on which the appellant's photos were taken and the recollection of the owner cannot be independently dated.

28. The Board heard arguments in support of and in opposition to the motion to dismiss at the public hearing of February 8, 1984, primarily relating to the issue of estoppel. The public hearing was continued until the public hearing of February 15, 1984, for the express purpose of eliciting the testimony of the Zoning Administrator and the Deputy Zoning Administrator and for cross-examination of those witnesses.

29. At the public hearing of February 15, 1984, the Zoning Administrator testified that the building permit was erroneously issued due to a technical error in the interpretation of the Zoning Regulations.

30. The Zoning Administrator further testified that, upon the advice of the Assistant Corporation Counsel, the stop work order was rescinded, by telephone, at the conclusion of the October 27, 1983, meeting noted in Finding No. 20.

31. The rescission of the stop work order was essentially based on (a) the period of time which had elapsed since the issuance of the building permit; (b) the amount of work completed which basically consisted of demolition and the laying of footings; and (c) the contracts to which the owners had become obligated. The Assistant Corporation Counsel advised the Zoning Administrator that the facts relevant to the subject case basically met the elements of estoppel as set forth in the Saah case and in Finding of Fact No. 7 of this order.

32. The record contains two letters from Advisory Neighborhood Commission 3G, neither of which address the issues raised in the owner's motion to dismiss the subject application. The Board considered the owner's motion to dismiss as related to the element of estoppel as a preliminary jurisdictional matter. The merits of the case were not addressed. The Board, therefore, did not consider the issues and concerns of the ANC in determining its action on the motion to dismiss.

33. While there is some dispute, as noted earlier, about the exact stage and nature of construction that had been accomplished by the point at which the appeal had been filed, it is clear even from the appellant's photographs that substantial construction had been undertaken. Such construction clearly constitutes expensive and permanent improvements to the property.

CONCLUSIONS OF LAW AND OPINION:

Based on the foregoing findings of fact, the Board concludes that the elements of estoppel, as outlined in Finding of Fact No. 7, are in existence in the subject case. The record evidences that the owner acted in good faith, in

reliance on the affirmative acts of the District of Columbia Government and made expensive and permanent improvements to the subject building. The equities favor the owner of the property in this case.

Accordingly, it is ORDERED that the appeal is DISMISSED on the grounds that the District of Columbia is estopped from revoking the issued building permit. The further issue of laches raised in the motion to dismiss is therefore moot and the Board makes no findings or conclusions thereon. No further action by the Board on the subject appeal is necessary, and the Board makes no findings or conclusions on the merits of the allegations of error raised by the appellant.

VOTE: 3-0 (Walter B. Lewis, William F. McIntosh and Douglas J. Patton to DISMISS; Charles R. Norris and Carrie L. Thornhill not present, not voting).

BY ORDER OF THE D.C. BOARD OF ZONING ADJUSTMENT

ATTESTED BY:


STEVEN E. SHER
Executive Director

FINAL DATE OF ORDER: MAY 29 1984

UNDER SUB-SECTION 8204.3 OF THE ZONING REGULATIONS, "NO DECISION OR ORDER OF THE BOARD SHALL TAKE EFFECT UNTIL TEN DAYS AFTER HAVING BECOME FINAL PURSUANT TO THE SUPPLEMENTAL RULES OF PRACTICE AND PROCEDURE BEFORE THE BOARD OF ZONING ADJUSTMENT."

14093order/LJP5

PRE-FILE NUMBERS

ZONING DISTRICT

FILE NUMBER

PERMIT NUMBER

N.C.P.C. No:

O.G. No:

C-1

85608

By:

H.P.A. No:

S.L. No:

Ward No:

Receipt No:

Date:

Receipt No:



DEPARTMENT OF CONSUMER AND REGULATORY AFFAIRS
BUILDING AND LAND REGULATION ADMINISTRATION PERMIT SERVICE CENTER
 Tel 202-442-4589 Fax 202-442-4862

APPLICATION FOR CONSTRUCTION PERMITS ON PRIVATE PROPERTY
 (PRINT IN INK OR TYPE, DO NOT WRITE IN SHADED AREAS OR ON PAGE 4)

BLRA-33
 (Rev. 2/04)

CLEARANCE TO FILE
 By _____ Date _____

ERASING, CROSSING OUT, WHITING OUT, OR OTHERWISE ALTERING ANY ENTERED INFORMATION WILL VOID THIS APPLICATION

(A) ALL APPLICANTS MUST COMPLETE ITEMS 1 THRU 27

1. Address of Proposed Work: 5010 Benning Road SE	Suite No.	2. Lot 68	3. Square 5340	4. Application Date 10/25/05
5. Owner of Building or Property KOO Yuen	6. Address (include Zip Code) 4225 Conn. Ave. NW DC		7. Phone 202 5461216	
8. Agent for Owner: (if applicable) LEONARD & Stephanie CARROLL	9. Address (include Zip Code) 820 Ky Ave SE DC		10. Phone (202) 714-7908	
11. Type of Proposed Work (check all applicable boxes)				

- ☐ New Building
☐ Addition
☒ Alteration and Repair
☐ Raze Building

- ☐ Retaining Wall
☐ Fence
☐ Shed
☐ Awning

- ☐ Garage
☐ Sign
☐ Projection
☐ Other (Specify) _____

"False statements or misrepresentation of facts on a permit application and/or plans is subject to criminal penalties pursuant to DC law 22-2403."

12. Description of Proposed Work

Renovation of Existing ^{1-story} gas station Building as convenience store
new footing where required.
new roof, store front material D.P.C. and
install new island w/ gas pumps

13. Existing Use(s) of Building or Property Service Station	14. Ex. No of Stories of Bldg 1	15. Ex No of Dwelling Units —	Official Use Only Miscellaneous FEE \$	
16. Proposed Use(s) of Building or Property Service Station	17. Prop No of Stories of Bldg 1	18. Prop. No of Dwelling Units —	By: _____	Date: _____
19. Starting Date ASAP	20. Completion Date of work 11/1/06	21. Method of Removing Construction Debris ☒ Pick-up Truck ☐ Dumpster ☐ Other (specify) _____	22. Does the proposed work involve disturbing the earth or razing a building? ☒ Yes, answer q. 23 ☐ No, SKIP q. 23-27	
23. Is the area of disturbed earth more than 50 sq. ft? ☐ Yes, answer q. 24-25 ☒ No, SKIP q. 24-25	24. Soil Erosion Control Methods As per Drawings	25. Area of Offsite Drainage — sq. ft	26. No of Footings or Columns 4	27. Size of Footings or Columns 6'x5'

ALWAYS SIGN THE APPLICATION ON PAGE 3 (SECTION I)

Complete Section B if the proposed work is new building, addition or alteration. (Page 2)
 Complete Section C if the proposed work is razing a building. (Page 2)
 Complete Section D if the proposed work is a retaining wall. (Page 2)
 Complete Section E if the proposed work is a fence. (Page 3)
 Complete Section F if the proposed work is a shed/garage. (Page 3)
 Complete Section G if the proposed work is an awning. (Page 3)
 Complete Section H if the proposed work is a sign. (Page 3)

OFFICIAL USE ONLY				
	R	P	H	A
M				
P				
E				
F				
S				
W ☐ Yes ☐ No				
PLANS				
☐ No ☐ Sm ☐ Lg				

Before the Board of Zoning Adjustment, D.C.

PUBLIC HEARING. --Nov. 17, 1965

Appeal #8427 Eli Busada, et ux appellants.

The Zoning Administrator District of Columbia, appellee.

On motion duly made, seconded and carried with Messrs. McIntosh and Hatton dissenting, the following Order was entered on November 24, 1965:

ORDERED:

That the appeal to establish a gasoline service station adjoining 5008 Benning Road, N.E., lot 68, square 5340, be granted.

As the result of an inspection of the property by the Board, and from the records and the evidence adduced at the hearing, the Board finds the following facts:

(1) Appellant's lot, which has a frontage of 129.99 feet on Benning ~~for~~ Road and a depth of 125.05 feet is located in the C-1 District and contains an area in excess of 16,250 square feet.

(2) The site in question is located approximately 118 feet south of the intersection of H Street and Benning Road being between two stores.

(3) Appellant proposes to erect a three bay gasoline station with two service islands. He will provide a 25 foot wide approach and a 15 foot common access .

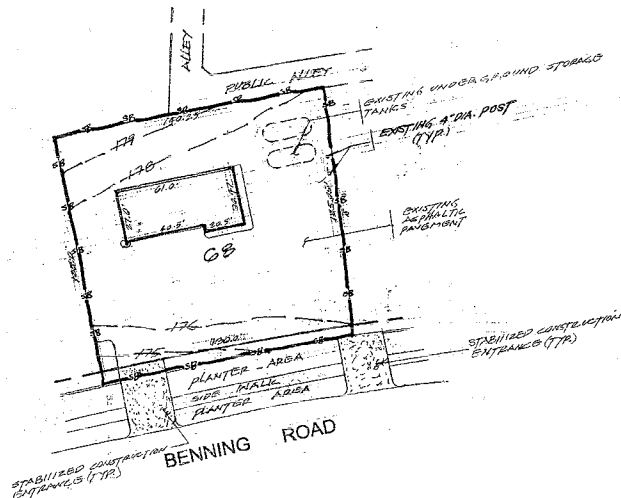
(4) The Department of Highways and Traffic offers no objection to the granting of this appeal stating that past usage of the existing driveways by store in the area provide sufficient indication that the establishment of this service station should not have an adverse effect on traffic.

(5) There was opposition to the granting of this appeal registered at the public hearing. The Benning Ridge Civic Association contends that the gasoline station would increase traffic, the non-existence of a pedestrian controlled light at the intersection makes the possibility of vehicle travel as well as pedestrian safety a problem; that the station would create additional neighborhood disturbances; that it would endanger children and adults and that there are sufficient stations in this area.

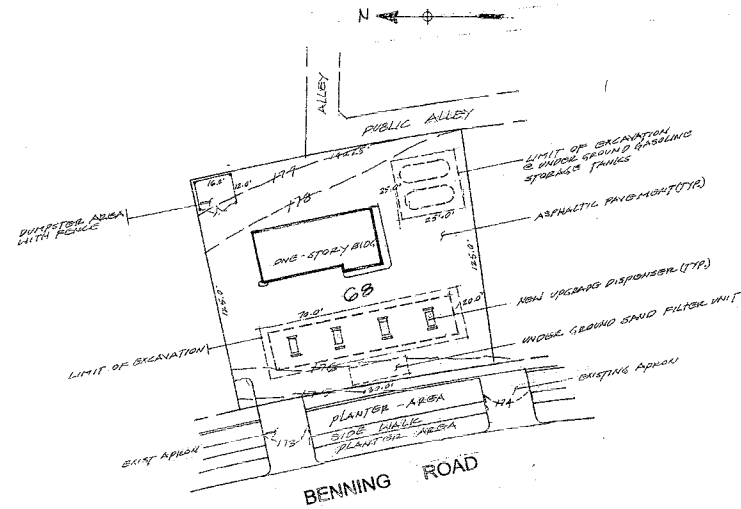
OPINION:

We are of the opinion that the establishment of this gasoline service station at this location will not create dangerous or other objectionable traffic conditions. We are further of the opinion that the contention of the objectors is not substantiated by the facts, the Board being of the opinion that this station will not create any serious increase in traffic nor become a hazard to life and limb.

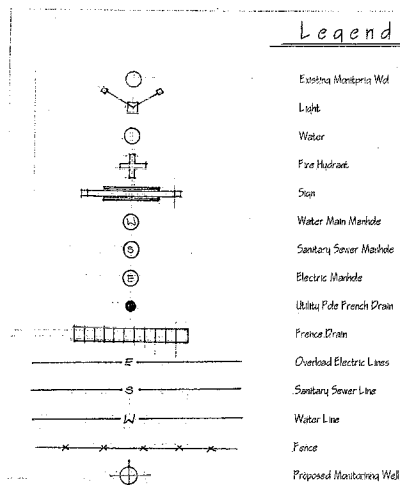
In view of the above it is our further opinion that the granting of this exception will be in harmony with the general purpose and intent of the zoning regulations and maps and will not tend to affect adversely the use of neighboring property in accordance with said zoning regulations and maps.



Site Development And Erosion
And Sediment Control Plan



Proposed Site Plan



Construction Narrative

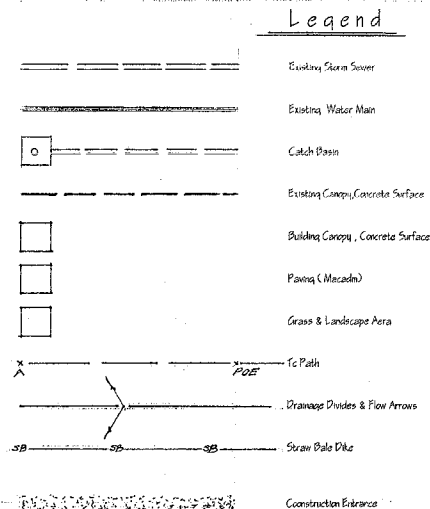
1. The project site consists of undeveloped lot on which are commercial stores with a gas station canopy 20' x 80' and four islands 4' x 8' with one pump each. The first grade will be asphalt / concrete. (first grade will be constructed, the lot is open, there is existing sidewalk. There is a building 61' x 20' x 11' previously existing, there are no existing trees).
2. Construction will begin as soon as all permits as soon as possible and approvals are obtained. All District control measures will be in place prior to any clearing, grubbing or grading. All construction traffic will be restricted to the stabilized construction entrance (same area).
3. Erosion of driveways will be completed once the exterior of all structures are completed. Existing curb and gutter will be new to accommodate the District standard if required.
4. Installation of retaining wall or walls will be completed before completion of driveways.
5. Final grading and clean up of the landscaped area will be completed prior to removal of ESD measures.

Excavation Quantitatives

Total area of excavation	= 900 cu
Total area of lot	= 16,890 sf
Total area disturbance	= 2,025 sf
Total building area	= 1,718 sf

Sequence of Construction

1. Prior to clearing of trees installing sediment control measures or grading. A reconstruction meeting must be conducted on site with the District of Columbia sediment control inspection.
2. The limit of Disturbance shall be field marked prior clearing. Installation of District control measures, construction or other land disturbing activities.
3. Clear and grub the project site for installation of sediment control devices.
4. Install sediment control devices as per approved plan.
5. Once the sediment control devices are installed the permittee must obtain approval from the District of Columbia Inspection before proceeding with any additional clearing or construction.
6. Excavate for gas station construction, construct all walls, structures, foundations and above building. Install utility connections.
7. Construct driveway and wall as per District of Columbia standards for drive ways and as per approved plans for retaining walls if required.
8. Concrete final grading and landscaping stabilizes all disturbed areas.
9. Prior to removal of any sediment control devices notify the District of Columbia control inspection for final approval.



Carroll Architects

Architects / Engineers

Kentucky Avenue, S.E., Washington, D.C.

202 546 1216
Architects Space Planning Interior Design



SITE DEVELOPMENT PLAN
2010 BENNING ROAD, SE
WASHINGTON DC 200019

REGISTRATION	SHEET TITLE
PROJECT NO.	AOA
DATE	
SCALE	
DRAWN BY	
CHECKED BY	
DATE	

DISTRICT OF COLUMBIA GOVERNMENT
OFFICE OF THE SURVEYOR

September 25, 2007 *BH*
Washington, D.C., ~~February 19, 2006~~

Plat for Building Permit of SQUARE 5340 LOT 68

Scale: 1 inch = 30 feet Recorded in Book 146 Page 58

Receipt No. ~~17434~~ 00295 *BH*

Furnished to: KARLA LEWIS

[Signature]
Surveyor, D.C.

By: L.E.S. *[Signature]*

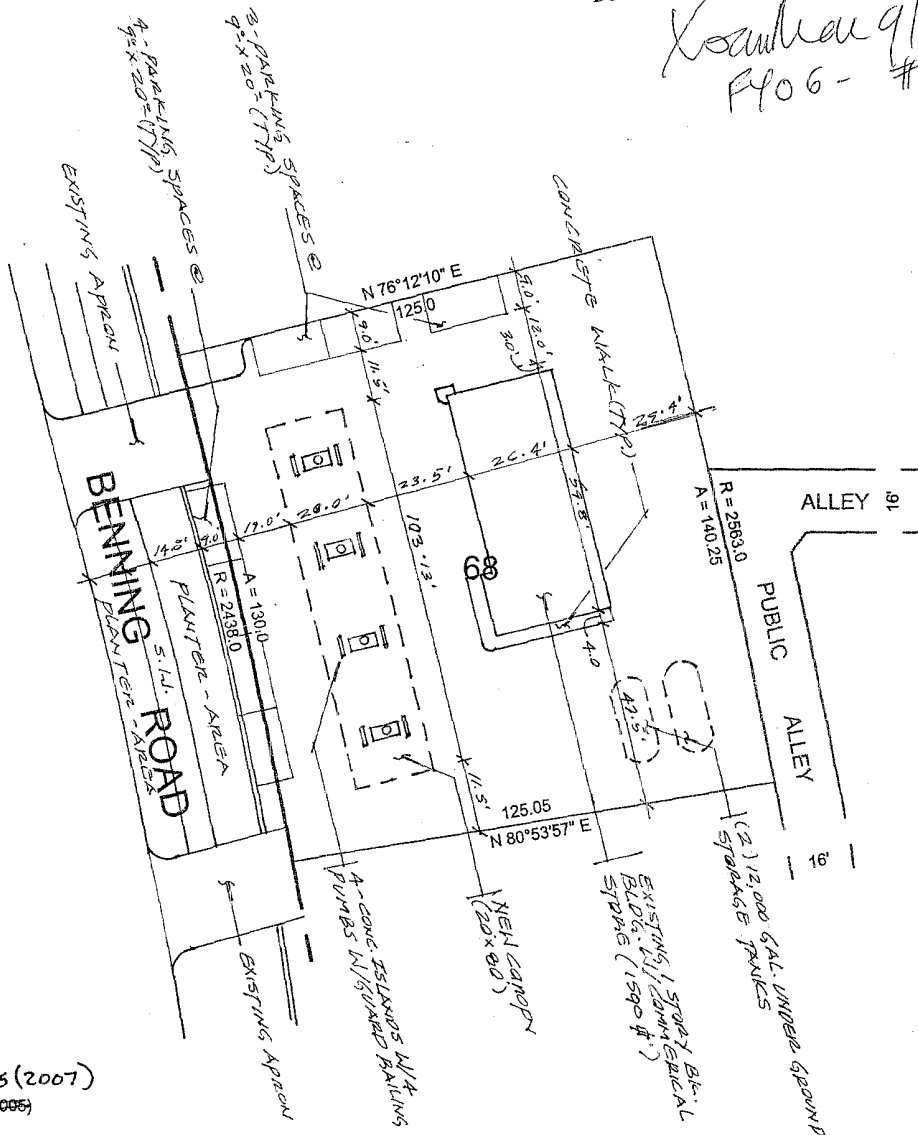
I hereby certify that all existing improvements shown hereon, are completely dimensioned, and are correctly platted; that all proposed buildings or construction, or parts thereof, including covered porches, are correctly dimensioned and platted and agree with plans accompanying the application; that the foundation plans as shown hereon is drawn, and dimensioned accurately to the same scale as the property lines shown on this plat; and that by reason of the proposed improvements to be erected as shown hereon the size of any adjoining lot or premises is not decreased to an area less than is required by the Zoning Regulations for light and ventilation; and it is further certified and agreed that accessible parking area where required by the Zoning Regulations will be reserved in accordance with the Zoning Regulations, and that this area has been correctly drawn and dimensioned hereon. It is further agreed that the elevation of the accessible parking area with respect to the Highway Department approved curb and alley grade will not result in a rate of grade along centerline of driveway at any point on private property in excess of 20% for single-family dwellings or flats, or in excess of 12% at any point for other buildings. (The policy of the Highway Department permits a maximum driveway grade of 12% across the public parking and the private restricted property.)

Date: *9/25/07*
[Signature]
(Signature of owner or his authorized agent)

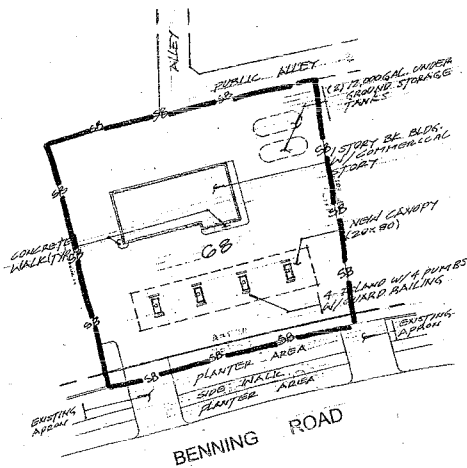
NOTE: Data shown for Assessment and Taxation Lots or Parcels are in accordance with the records of the Department of Finance and Revenue, Assessment Administration, and do not necessarily agree with deed description.

DCRA/OFFICE OF THE ZONING
ADMINISTRATOR/COMPLIES
WITH REQUIREMENTS OF
DC ZONING REGULATIONS (DDCMR)

Koanhou 9/25/07
P406- #186-C



SO-00295 (2007)
SO-17434 (2006)



SITE PLAN
SCALE: N.T.S.

EROSION CONTROL NOTES

1. All sediment and erosion control methods shall be installed before the start of any excavation and/or construction as per Standards and Specifications for Soil Erosion and Sediment Control for the District of Columbia. If an on-site inspection reveals further erosion control measures are necessary, the same shall be provided.
2. All debris is to be removed from site.
3. Alley and/or streets/sidewalks shall be swept clean at all times during excavation and construction.
4. All catch basins and drain area shall be protected during excavation and construction.
5. If any catch basins or drains become clogged as a result of excavation or construction the contractor shall be responsible for its cleaning.
6. When sediment trap/sediment tank has reached 67% capacity, clean out of same is required.
7. Any stockpiling, regardless of location shall be stabilized and covered with plastic or canvas, after its establishment and for the duration of the project.
8. After Base or Demo, there is the need for groundcover to prevent erosion and sediment runoff from occurring. Such as seed, sod, pave, brickbat or mulch, etc.

FOR FURTHER INFORMATION, PLEASE CALL:

SEDIMENT CONTROL APPROVAL

PLAN NUMBER _____
This approval is for grading and Sediment Control only. Permittee/ Contractor is required to construct design features shown herein.
He will notify this office at number below at least 24 hours before start of grading activity, and within two weeks after completion of project for final inspection.

DATE _____ FLOODING AND EROSION CONTROL SECTION

LIST OF STANDARD SYMBOLS

Earth Dike

Elevated Dike

Silt Fence

Temporary Silt

Stabilized Construction Entrance

Grass Stabilization Structure

Pipe Slope Drain

Perimeter Dike/Slope

Inlet Protection

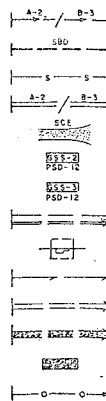
Diversion

Gravelly Interway

Lined Waterway

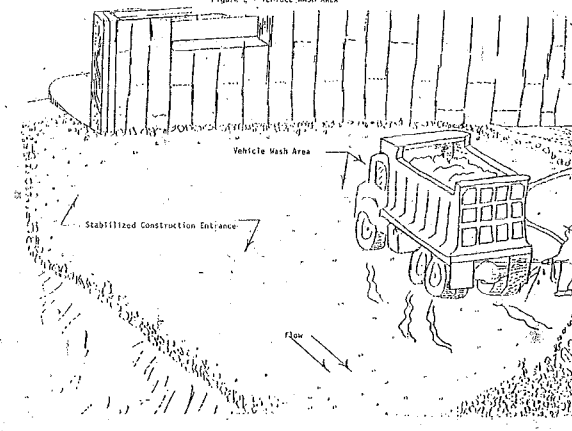
Rock Outlet Protection

Subsurface Drain



- 1) ALL SEDIMENT AND EROSION CONTROL METHODS SHALL BE INSTALLED BEFORE THE START OF ANY EXCAVATION AND/OR CONSTRUCTION AS PER STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR THE DISTRICT OF COLUMBIA. IF AN ON-SITE INSPECTION REVEALS FURTHER EROSION CONTROL MEASURES ARE NECESSARY, THE SAME SHALL BE PROVIDED.
- 2) ALLEY AND/OR STREET SHALL BE SWEEP CLEAN AT ALL TIMES DURING EXCAVATION AND CONSTRUCTION.
- 3) ALL CATCH BASINS AND AREA DRAINS SHALL BE PROTECTED DURING EXCAVATION AND CONSTRUCTION.
- 4) IF ANY CATCH BASIN OR DRAIN BECOMES CLOGGED AS A RESULT OF EXCAVATION CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ITS CLEANING.
- 5) WHEN SEDIMENT TRAP/SEDIMENT TANK HAS REACHED 67 CAPACITY, CLEAN OUT SAME IS REQUIRED.
- 6) ANY STOCKPILING, REGARDLESS OF LOCATION ON SITE SHALL BE STABILIZED WITHIN 30 DAYS AFTER ITS ESTABLISHMENT AND FOR THE DURATION OF THE PROJECT.

Figure 2 - VEHICLE WASH AREA



STANDARDS AND SPECIFICATIONS FOR VEHICLE WASH AREA

Definition

An on-site area where tires and under carriage of a vehicle can be washed.

Purpose

The "Vehicle Wash Area" is provided to minimize the quality of sediment deposited on public space by vehicles leaving the site.

Conditions Where Practice Applies

The "Vehicle Wash Area" will be required on any site where vehicles can enter onto unimproved surfaces.

Design Criteria

The Vehicle Wash Area shall be provided on-site and drained on-site. The area may be constructed of rubble, or other hard porous material. A working water hose must be located in the area during all construction activity.

Revision	

Carroll Architect

Architects / Engineers

Kennedy Avenue, S.E., Washington, D.C.

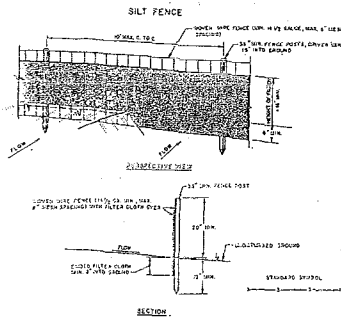
202 546 1216

Architect Space Planning Interior Design



EROSION CONTROL NOTES AND DETAIL
2010 BENNING ROAD, SE
WASHINGTON DC, 200019

REGISTRATION	SHEET 111
PROJECT NO. 10000000000000000000	AO.2
DATE	
DESIGNED BY	
CHECKED BY	
DATE	



CONSTRUCTION NOTES FOR EMPLOYMENT SILT FENCE

1. WHEN WORK IS TO BE INSTALLED, BRICKS TO BE PLACED IN ROWS WITH 1/2" SPACES BETWEEN ROWS.
2. FILTER FABRIC TO BE PLACED UNDERLY TO PREVENT FLOW OF WATER THROUGH FENCE.
3. BRICKS TO BE PLACED IN ROWS WITH 1/2" SPACES BETWEEN ROWS.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REPLACED AS NEEDED.

POINTS: STEEL STUDS 1" ON 1" TYPE OR 2" HANDS
FENCE: 12" WIDE, 12" GA. 12" WIDE, 12" GA.
FENCE: 12" WIDE, 12" GA. 12" WIDE, 12" GA.
FENCE: 12" WIDE, 12" GA. 12" WIDE, 12" GA.
FENCE: 12" WIDE, 12" GA. 12" WIDE, 12" GA.

STANDARDS AND SPECIFICATIONS FOR BRICKBAT GROUND COVER

Definition

Temporary ground cover consisting of broken brick (1/4 piece or smaller) placed over denuded earth.

Purpose

Brickbats provide a temporary ground cover over denuded urban earth to prevent the transportation of sediment from the site.

Conditions When Practice Applies

Brickbats may be used on any site in need of temporary ground cover.

Design Criteria

The brickbats shall be placed to a depth of 3 inches to 4 inches covering the denuded earth on the site, then compacted and leveled.

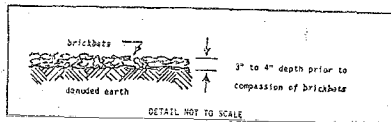
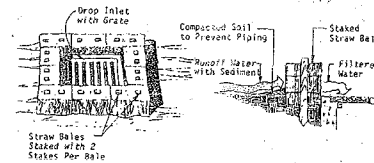
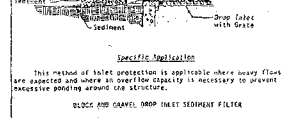
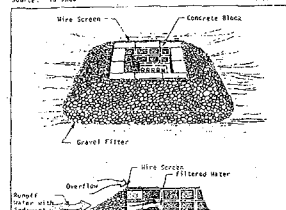
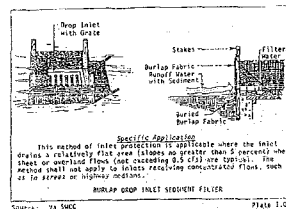
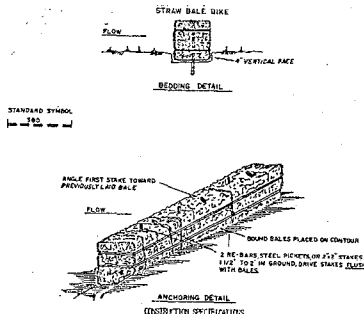


Figure 1 - BRICKBATS

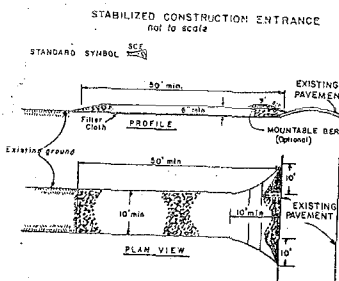


Specific Application
This method of inlet protection is applicable where the inlet drains a relatively flat area (slopes no greater than 5 percent) where sheet or overland flow (not exceeding 0.5 cfs) are typical. The method shall not apply to inlet receiving concentrated flows, such as in street or highway medians.

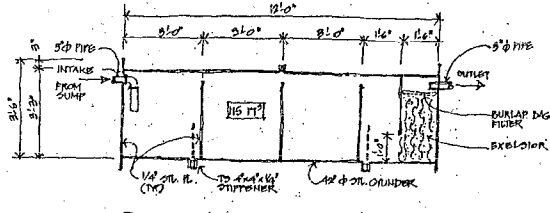
STRAW BALE DROP INLET SEDIMENT FILTER



1. Bales shall be placed at the toe of a slope or on the contour and in a row with bales tightly abutting the adjacent bales.
2. Each bale shall be embedded in the soil a minimum of (4) inches, and placed so the bales are horizontal.
3. Bales shall be securely anchored in place by either two stakes or re-bars driven through the bales. The first stake in each row shall be driven toward the previously laid bale by an angle to force the bales together. Stakes shall be driven flush with the dike.
4. Inspection shall be frequent and repair replacement shall be made promptly as needed.
5. Bales shall be removed when they have soaked their usefulness so as not to block or impede storm flow or drainage.

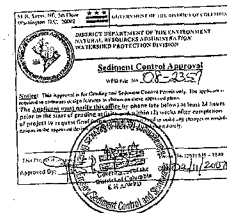


1. Stone Dike - Use 2" stone, or retained or recycled concrete equivalent.
2. Length - As required, but not less than 50 feet (except on a single easement).
3. Thickness - Not less than six (6) inches.
4. Height - Ten (10) foot minimum, but not less than the full width at points where ingress or egress occurs.
5. Filter Cloth - Will be placed over the entire area prior to placing of stone. Filter will not be required on a single family residence lot.
6. Surface Water - All surface water flowing or diverted toward construction entrance shall be piped across the entrance. If piping is impractical, a mountable beam with 1:1 slope will be permitted.
7. Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public right-of-way. This may require periodic top dressing with additional stone as conditions demand and/or removal of any material used to trap sediment. All sediment applied, stopped, washed or tracked onto public right-of-way must be removed immediately.
8. Washing - Wheels shall be cleaned to remove sediment prior to entrance onto public right-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
9. Periodic inspection and needed maintenance shall be provided after each rain.



SECTION THRU SEDIMENT TANK

1. ALTERNATE CONSTRUCTION: 36" STEEL CYLINDER, 15' LONG WITH 5 CHAMBERS.
2. WHEN OIL HAS ACCUMULATED IN TANK TO A DEPTH OF 6" OF CAPACITY OF TANK, CLEAN TANK OF ALL OIL.



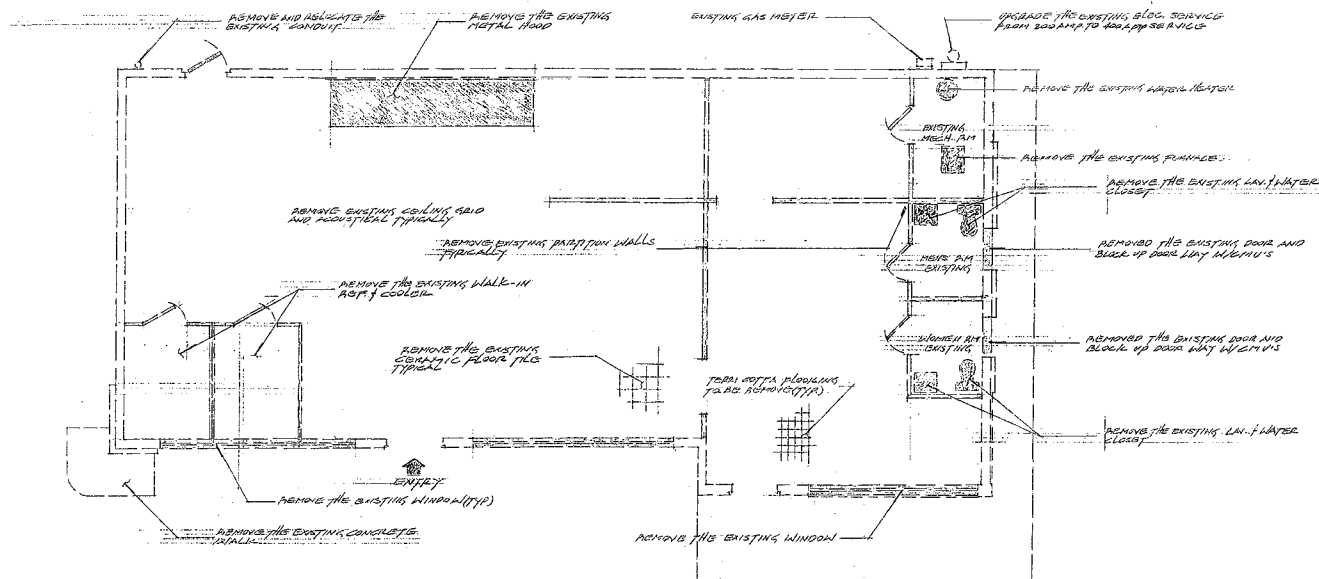
Carroll Architects
Architects / Engineer
Kentucky Avenue, S.E., Washington, D.C.
202 546 1216
Architects / Engineer



EROSION CONTROL NOTES AND DETAILS
5010 PENNING ROAD, SE
WASHINGTON DC, 20009

REGISTRATION
DATE
DRAWN BY
CHECKED BY
DATE

1. Verify conditions of and ensure that the structural integrity of all existing infrastructure and masonry is a sound state.
2. Remove all existing interior non-bearing and bearing Partitions except those designated to remain.
3. Remove all existing interior non-bearing and bearing Masonry walls except those designated to remain.
4. Replace any damaged concrete sub flooring logically.
5. Remove all existing terra-cotta and ceramic floor tiles typically.
6. Remove all existing mechanical and electrical systems in the building that including ones, pumps, radiators, and both room fixtures and Appliances except those designated to remain.
7. Remove all existing doors, window sashes, frames except those designated to remain.
8. Remove existing roofing material down to decking remove all deteriorated sheathing and replace with new sheathing leaving with remaining shingles.
9. Remove existing downspouts, gutters, capoms and vents.
10. Remove all exterior damaged fascia so as to be ready for repair.



Architecture Space Planning Interior Design



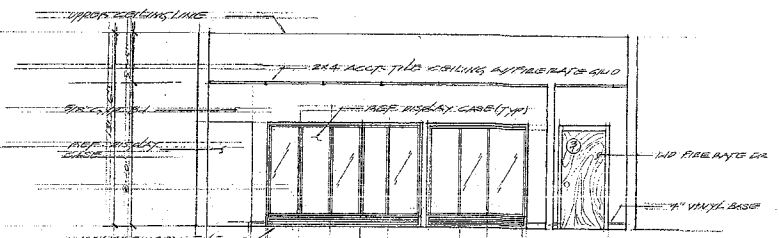
EXISTING BUILDING (DEMOLITION) PLAN
5010 BENNING ROAD, SE
WASHINGTON DC, 200019

RECEIVED BY COLLECTOR
BUREAU OF THE TREASURY DEPARTMENT
WASHINGTON, D. C. 20549
MAY 13 2009

REGISTRATION

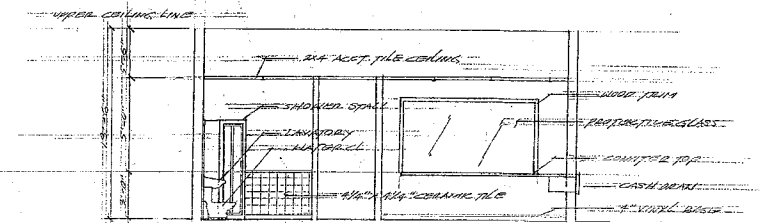
SIXT HILL
A.I.

Date _____
Sex _____
Issued by _____
Checked by _____
Job No. _____



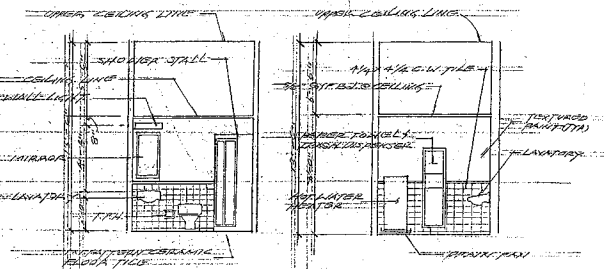
Elevation Through The Building - 2

Elevator Through The Building - 3



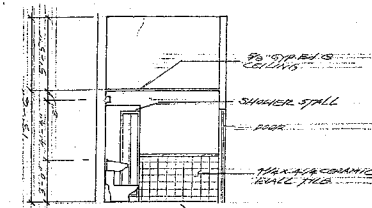
Elevation Through The Building - 2

Elevation Through The Building - 4



Water Room Elevation - 5

Water Room Elevation - 6



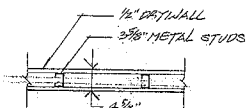
Water Room Elevation - 7

2-LAYERS $\frac{3}{8}$ " DRY WALL BOTH

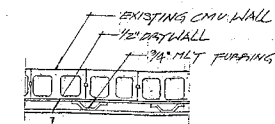
$\frac{3}{8}$ " M/LT STUDS

6 $\frac{1}{8}$ "

Detail - 2 Hr. Fire Rated



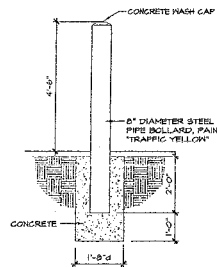
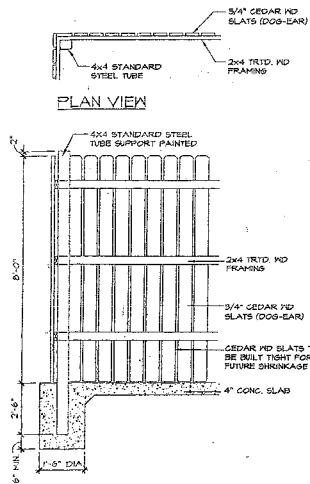
Detail - 1 Hr. Fire Rated



Detail - 4 Hr. Fire Rated

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

MAR 03 2005



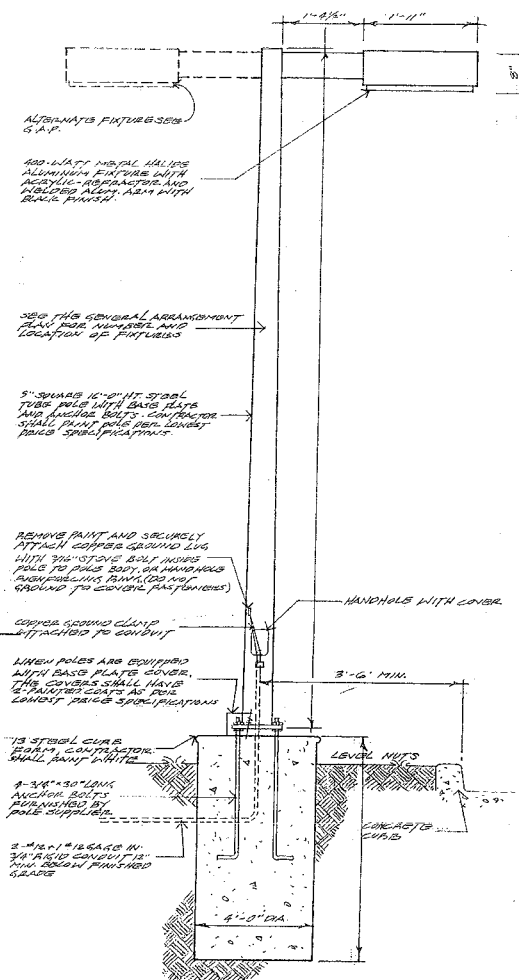
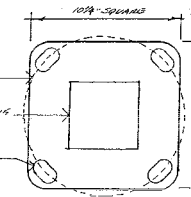
2 BOLLARD DETAIL
SCALE: 1/2\"/>

MATERIAL	DESCRIPTION
FENCE:	40\"/>
DATE POST:	3\"/>
DATE POST:	3\"/>
TECHNICAL:	2\"/>
POSTS:	VINYL BRACE BAND 1 CARTRIDGE BOLT VINYL STEEL RAILING VINYL STEEL LOOP CAP VINYL SLURON CAP 3\"/>
TO HIRE:	3\"/>
POST POLYMER:	PORTLAND CEMENT CONCRETE
FENCE INSERTS:	6\"/>

ALTERNATE DRAWING: PRIVACY FENCE INC. P.O. BOX 248, 1000 PARK ST. WASH. DC 20005. (202) 546-1216. 1. COORDINATE LOCATION OF DUMPSTER STRUCTURE WITH CIVIL DRAWINGS.

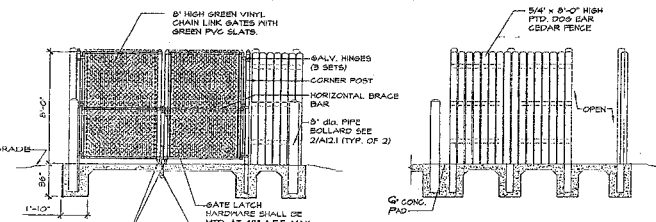
GENERAL NOTE: 1. COORDINATE LOCATION OF DUMPSTER STRUCTURE WITH CIVIL DRAWINGS.

YARD LIGHT
BASE PLATE DETAIL

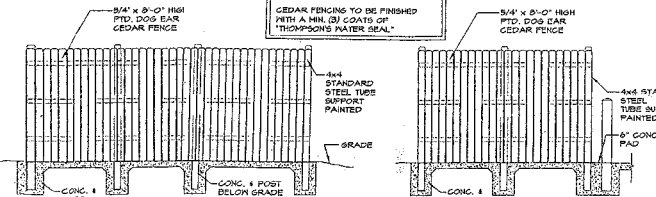


TYPICAL YARD LIGHT DETAIL
SCALE: 1\"/>

3 DETAIL AT WOOD FENCE
SCALE: 1/2\"/>

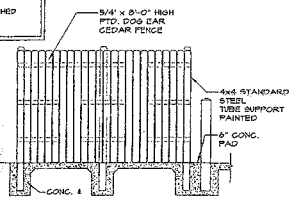


10 FRONT ELEVATION
SCALE: 1/4\"/>

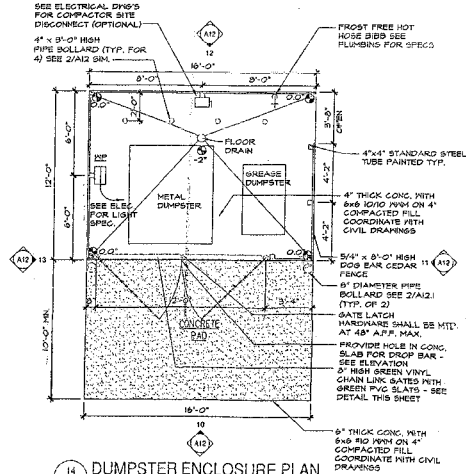


13 LEFT ELEVATION
SCALE: 1/4\"/>

11 RIGHT ELEVATION
SCALE: 1/4\"/>



13 LEFT ELEVATION
SCALE: 1/4\"/>

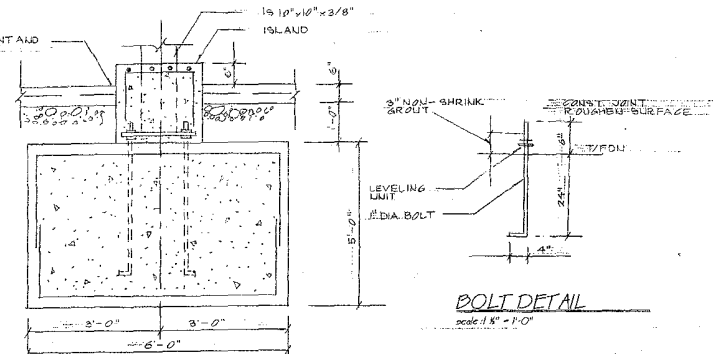


14 DUMPSTER ENCLOSURE PLAN
SCALE: 1/4\"/>

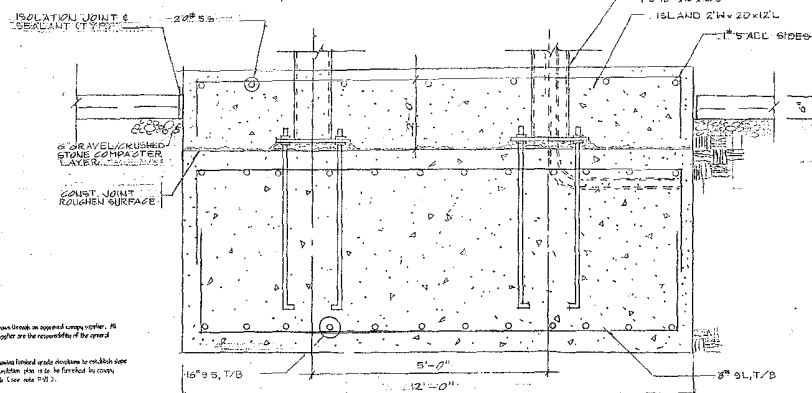
Carroll Architects
Architects / Engineers
Kentucky Avenue, S.E., Washington, D.C.
202 546 1216
Architect License No. 7743
Professional Seal

FENCE ENCLOSURE AND
YARD LIGHT DETAIL
3010 DENNING ROAD, SE
WASHINGTON, DC 20009

REGISTRATION
MAR 20 2009
A13



SECTION THRU FOOTING

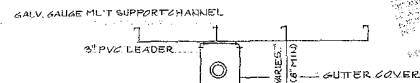


SECTION THRU CANOPY FOOTING

scale: $3/4" = 1' - 0"$

-
- 20" x 12 THK BASE PLATE
- 10" x 10" x 3/8 T.S. COLUMN
- OVER SIZE HOLES
- 4" x 4" x 1/2 T.S. PLATE

code: 3/4" - 1 - 0'



NOTE: PROVIDE INTERM. SUPPORT BETWEEN COL. AND GUTTER AS NECESSARY

scale: $l' = l - O$



Revision

Carroll Architects

Architects / Engineers

Kentucky Avenue, S.E., Washington, D.C.

202 546 121

202	546	1216
Amplitude	Speed Forward	Latency Delay

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0%



CANOPY AND FOOTING DETAILS
3010 BENNING ROAD, SE
WASHINGTON DC. 20009

REGISTRATION

SUBJECT _____

A1.4

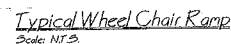
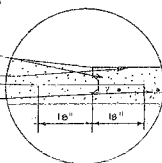
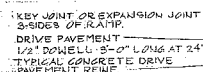
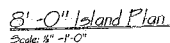
Date _____

Sold _____

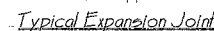
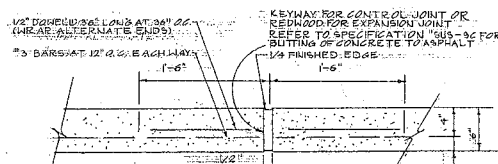
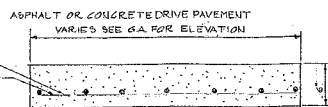
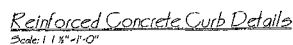
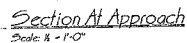
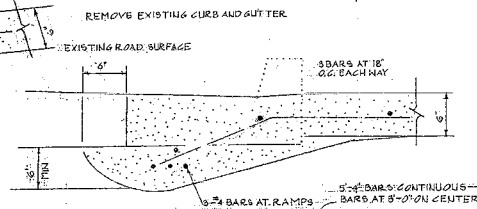
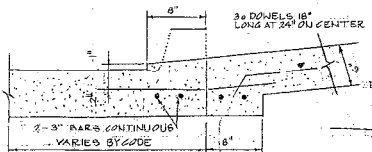
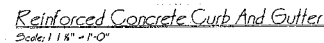
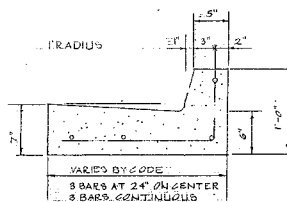
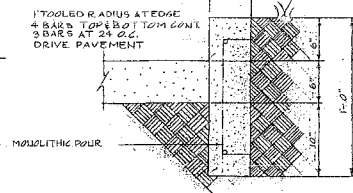
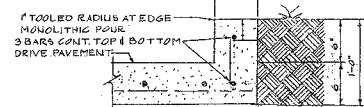
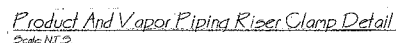
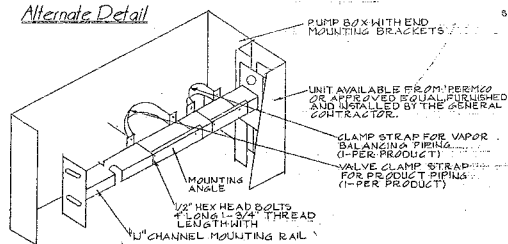
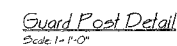
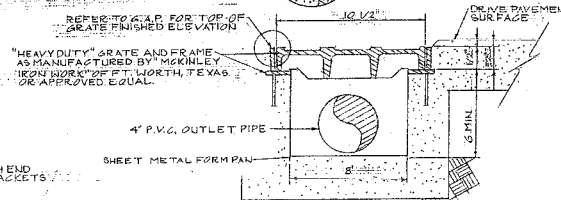
Drawing by _____

Credited By _____

Job No. _____



NOTE: MINIMUM SLOPE = 1:12 (ADJUST "Z"
DIMENSION AS REQUIRED IF RISE EXCEEDS 6")
RAMP SHALL CONFORM TO A.N.S.I. A117.1-1986
AMERICAN NATIONAL STANDARDS MANUAL.
JOINT



Results

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202 546 1216

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Journal of Planning Literature



DETAILS
5010 DENNING ROAD, SE
WASHINGTON DC. 200019

REGISTRATION

STREET TITLE

AL5

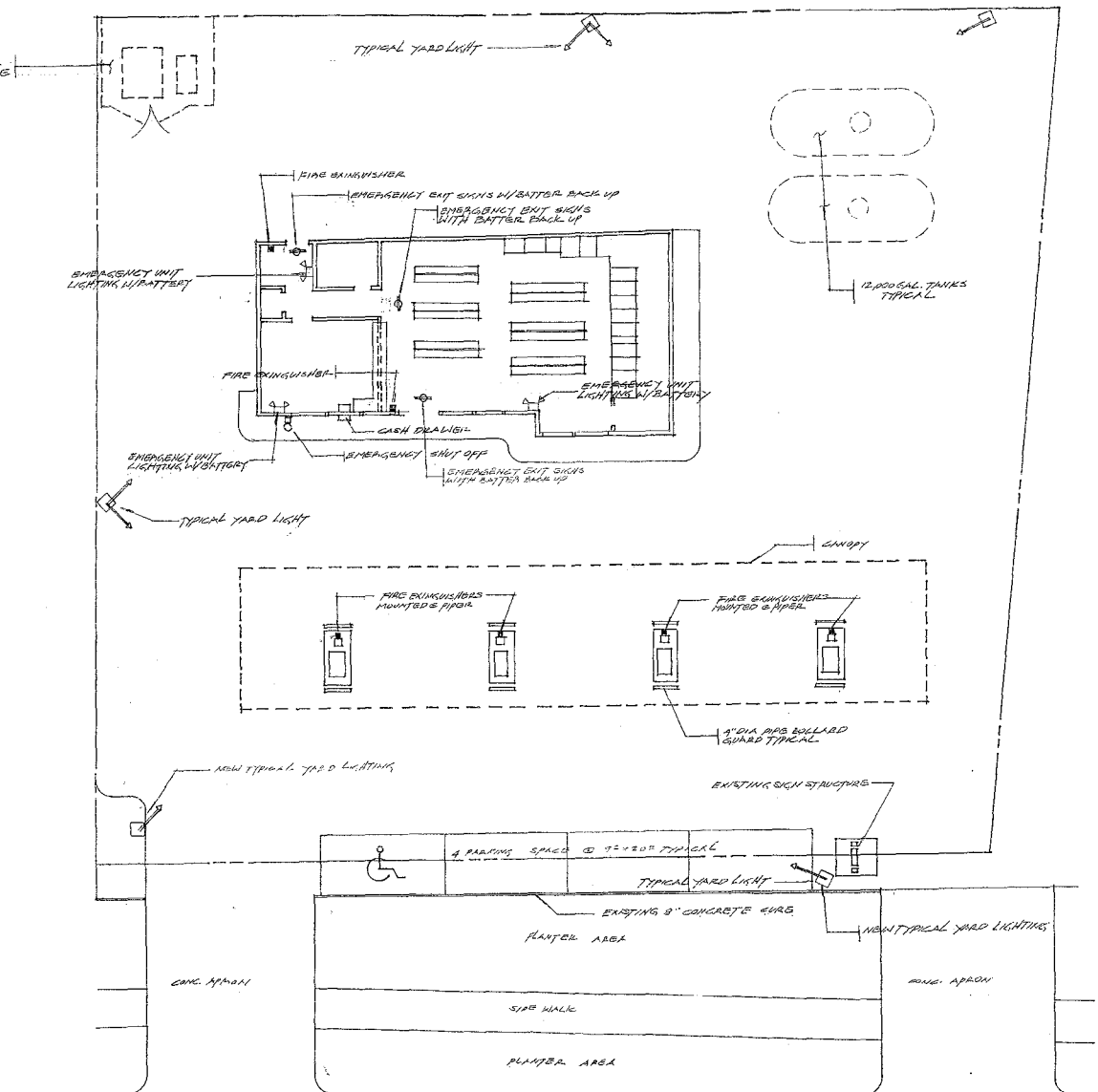
Date

Score

Drawn By

Checked By

Job No.



FIRE EQUIPMENT LOCATION PLAN
SCALE: 1/8" = 1'-0"

Revision	Date

Carroll Architects

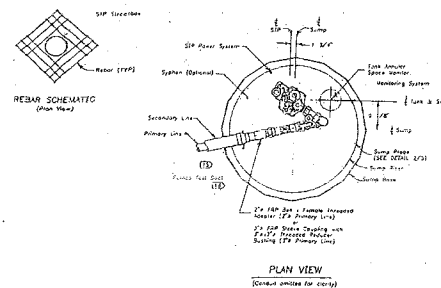
Architects / Engineers
 Kentucky Avenue, S.E., Washington, D.C.
 202 546 1216
 Architects Space Planning Interior Design



FIRE EQUIPMENT LOCATION PLAN
 2010 PENNING ROAD, SE
 WASHINGTON DC, 20009

PROJECT NO. DATE DRAWN BY CHECKED BY DATE	REGISTRATION PROJECT NO. PROJECT TITLE SCALE DATE
---	---

PROJECT NO. *1111*
 DATE *MAR 03 2009*
 DRAWN BY *hsk*
 CHECKED BY
 DATE



A. VENT & VAPOR TESTING:

NOTE: VENT & VAPOR TESTING: WINTER ALL VAPOR TESTING

1. Venting of vapor testing after all vapor testing.
2. Venting of vapor testing after all vapor testing.
3. Venting of vapor testing after all vapor testing.
4. Venting of vapor testing after all vapor testing.
5. Venting of vapor testing after all vapor testing.
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17. Venting of vapor testing after all vapor testing.
18. Venting of vapor testing after all vapor testing.
19. Venting of vapor testing after all vapor testing.
20. Venting of vapor testing after all vapor testing.

STAGE II VAPOR TESTING:

1. Stage II vapor testing.
2. Stage II vapor testing.
3. Stage II vapor testing.
4. Stage II vapor testing.
5. Stage II vapor testing.
6. Stage II vapor testing.
7. Stage II vapor testing.
8. Stage II vapor testing.
9. Stage II vapor testing.
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14. Stage II vapor testing.
15. Stage II vapor testing.
16. Stage II vapor testing.
17. Stage II vapor testing.
18. Stage II vapor testing.
19. Stage II vapor testing.
20. Stage II vapor testing.

STAGE III VAPOR TESTING:

1. Stage III vapor testing.
2. Stage III vapor testing.
3. Stage III vapor testing.
4. Stage III vapor testing.
5. Stage III vapor testing.
6. Stage III vapor testing.
7. Stage III vapor testing.
8. Stage III vapor testing.
9. Stage III vapor testing.
10. Stage III vapor testing.
11. Stage III vapor testing.
12. Stage III vapor testing.
13. Stage III vapor testing.
14. Stage III vapor testing.
15. Stage III vapor testing.
16. Stage III vapor testing.
17. Stage III vapor testing.
18. Stage III vapor testing.
19. Stage III vapor testing.
20. Stage III vapor testing.

STAGE IV VAPOR TESTING:

1. Stage IV vapor testing.
2. Stage IV vapor testing.
3. Stage IV vapor testing.
4. Stage IV vapor testing.
5. Stage IV vapor testing.
6. Stage IV vapor testing.
7. Stage IV vapor testing.
8. Stage IV vapor testing.
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14. Stage IV vapor testing.
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16. Stage IV vapor testing.
17. Stage IV vapor testing.
18. Stage IV vapor testing.
19. Stage IV vapor testing.
20. Stage IV vapor testing.

STAGE V VAPOR TESTING:

1. Stage V vapor testing.
2. Stage V vapor testing.
3. Stage V vapor testing.
4. Stage V vapor testing.
5. Stage V vapor testing.
6. Stage V vapor testing.
7. Stage V vapor testing.
8. Stage V vapor testing.
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11. Stage V vapor testing.
12. Stage V vapor testing.
13. Stage V vapor testing.
14. Stage V vapor testing.
15. Stage V vapor testing.
16. Stage V vapor testing.
17. Stage V vapor testing.
18. Stage V vapor testing.
19. Stage V vapor testing.
20. Stage V vapor testing.

VAPOR TESTING REPORT (READINGS IN "INCHES" OF H₂O)

ITEM	DATE	TIME	TEST	RESULT
DISPENSER #1				
DISPENSER #2				
DISPENSER #3				
DISPENSER #4				
DISPENSER #5				
DISPENSER #6				
DISPENSER #7				
DISPENSER #8				
DISPENSER #9				
DISPENSER #10				
DISPENSER #11				
DISPENSER #12				
DISPENSER #13				
DISPENSER #14				
DISPENSER #15				
DISPENSER #16				
DISPENSER #17				
DISPENSER #18				
DISPENSER #19				
DISPENSER #20				

TESTER: _____

DATE: _____

TIME: _____

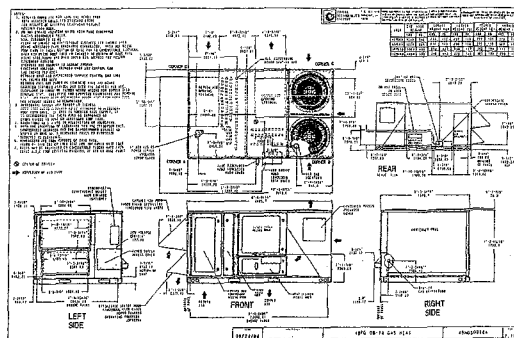
TEST: _____

RESULT: _____

PRESSURE DECAY CRITERIA

INITIAL PRESSURE OF 500 INCHES H₂O

ULAGE (GALLONS)	MINIMUM PRESSURE AFTER 3 MINUTES (INCHES H ₂ O)				
	0-6	7-12	13-18	19-24	25+
400	1.30	1.20	1.11	1.03	0.97
450	1.31	1.21	1.12	1.04	0.98
500	1.32	1.22	1.13	1.05	0.99
550	1.33	1.23	1.14	1.06	1.00
600	1.34	1.24	1.15	1.07	1.01
650	1.35	1.25	1.16	1.08	1.02
700	1.36	1.26	1.17	1.09	1.03
750	1.37	1.27	1.18	1.10	1.04
800	1.38	1.28	1.19	1.11	1.05
850	1.39	1.29	1.20	1.12	1.06
900	1.40	1.30	1.21	1.13	1.07
950	1.41	1.31	1.22	1.14	1.08
1000	1.42	1.32	1.23	1.15	1.09
1050	1.43	1.33	1.24	1.16	1.10
1100	1.44	1.34	1.25	1.17	1.11
1150	1.45	1.35	1.26	1.18	1.12
1200	1.46	1.36	1.27	1.19	1.13
1250	1.47	1.37	1.28	1.20	1.14
1300	1.48	1.38	1.29	1.21	1.15
1350	1.49	1.39	1.30	1.22	1.16
1400	1.50	1.40	1.31	1.23	1.17
1450	1.51	1.41	1.32	1.24	1.18
1500	1.52	1.42	1.33	1.25	1.19
1550	1.53	1.43	1.34	1.26	1.20
1600	1.54	1.44	1.35	1.27	1.21
1650	1.55	1.45	1.36	1.28	1.22
1700	1.56	1.46	1.37	1.29	1.23
1750	1.57	1.47	1.38	1.30	1.24
1800	1.58	1.48	1.39	1.31	1.25
1850	1.59	1.49	1.40	1.32	1.26
1900	1.60	1.50	1.41	1.33	1.27
1950	1.61	1.51	1.42	1.34	1.28
2000	1.62	1.52	1.43	1.35	1.29
2050	1.63	1.53	1.44	1.36	1.30
2100	1.64	1.54	1.45	1.37	1.31
2150	1.65	1.55	1.46	1.38	1.32
2200	1.66	1.56	1.47	1.39	1.33
2250	1.67	1.57	1.48	1.40	1.34
2300	1.68	1.58	1.49	1.41	1.35
2350	1.69	1.59	1.50	1.42	1.36
2400	1.70	1.60	1.51	1.43	1.37
2450	1.71	1.61	1.52	1.44	1.38
2500	1.72	1.62	1.53	1.45	1.39
2550	1.73	1.63	1.54	1.46	1.40
2600	1.74	1.64	1.55	1.47	1.41
2650	1.75	1.65	1.56	1.48	1.42
2700	1.76	1.66	1.57	1.49	1.43
2750	1.77	1.67	1.58	1.50	1.44
2800	1.78	1.68	1.59	1.51	1.45
2850	1.79	1.69	1.60	1.52	1.46
2900	1.80	1.70	1.61	1.53	1.47
2950	1.81	1.71	1.62	1.54	1.48
3000	1.82	1.72	1.63	1.55	1.49
3050	1.83	1.73	1.64	1.56	1.50
3100	1.84	1.74	1.65	1.57	1.51
3150	1.85	1.75	1.66	1.58	1.52
3200	1.86	1.76	1.67	1.59	1.53
3250	1.87	1.77	1.68	1.60	1.54
3300	1.88	1.78	1.69	1.61	1.55
3350	1.89	1.79	1.70	1.62	1.56
3400	1.90	1.80	1.71	1.63	1.57
3450	1.91	1.81	1.72	1.64	1.58
3500	1.92	1.82	1.73	1.65	1.59
3550	1.93	1.83	1.74	1.66	1.60
3600	1.94	1.84	1.75	1.67	1.61
3650	1.95	1.85	1.76	1.68	1.62
3700	1.96	1.86	1.77	1.69	1.63
3750	1.97	1.87	1.78	1.70	1.64
3800	1.98	1.88	1.79	1.71	1.65
3850	1.99	1.89	1.80	1.72	1.66
3900	2.00	1.90	1.81	1.73	1.67
3950	2.01	1.91	1.82	1.74	1.68
4000	2.02	1.92	1.83	1.75	1.69
4050	2.03	1.93	1.84	1.76	1.70
4100	2.04	1.94	1.85	1.77	1.71
4150	2.05	1.95	1.86	1.78	1.72
4200	2.06	1.96	1.87	1.79	1.73
4250	2.07	1.97	1.88	1.80	1.74
4300	2.08	1.98	1.89	1.81	1.75
4350	2.09	1.99	1.90	1.82	1.76
4400	2.10	2.00	1.91	1.83	1.77
4450	2.11	2.01	1.92	1.84	1.78
4500	2.12	2.02	1.93	1.85	1.79
4550	2.13	2.03	1.94	1.86	1.80
4600	2.14	2.04	1.95	1.87	1.81
4650	2.15	2.05	1.96	1.88	1.82
4700	2.16	2.06	1.97	1.89	1.83
4750	2.17	2.07	1.98	1.90	1.84
4800	2.18	2.08	1.99	1.91	1.85
4850	2.19	2.09	2.00	1.92	1.86
4900	2.20	2.10	2.01	1.93	1.87
4950	2.21	2.11	2.02	1.94	1.88
5000	2.22	2.12	2.03	1.95	1.89
5050	2.23	2.13	2.04	1.96	1.90
5100	2.24	2.14	2.05	1.97	1.91
5150	2.25	2.15	2.06	1.98	1.92
5200	2.26	2.16	2.07	1.99	1.93
5250	2.27	2.17	2.08	2.00	1.94
5300	2.28	2.18	2.09	2.01	1.95
5350	2.29	2.19	2.10	2.02	1.96
5400	2.30	2.20	2.11	2.03	1.97
5450	2.31	2.21	2.12	2.04	1.98
5500	2.32	2.22	2.13	2.05	1.99
5550	2.33	2.23	2.14	2.06	2.00
5600	2.34	2.24	2.15	2.07	2.01
5650	2.35	2.25	2.16	2.08	2.02
5700	2.36	2.26	2.17	2.09	2.03
5750	2.37	2.27	2.18	2.10	2.04
5800	2.38	2.28	2.19	2.11	2.05
5850	2.39	2.29	2.20	2.12	2.06
5900	2.40	2.30	2.21	2.13	2.07
5950	2.41	2.31	2.22	2.14	2.08
6000	2.42	2.32	2.23	2.15	2.09
6050	2.43	2.33	2.24	2.16	2.10
6100	2.44	2.34	2.25	2.17	2.11
6150	2.45	2.35	2.26	2.18	2.12
6200	2.46	2.36	2.27	2.19	2.13
6250	2.47	2.37	2.28	2.20	2.14
6300	2.48	2.38	2.29	2.21	2.15
6350	2.49	2.39	2.30	2.22	2.16
6400	2.50	2.40	2.31	2.23	2.17
6450	2.51	2.41	2.32	2.24	2.18
6500	2.52	2.42	2.33	2.25	2.19
6550	2.53	2.43	2.34	2.26	2.20
6600	2.54	2.44	2.35	2.27	2.21
6650	2.55	2.45	2.36	2.28	2.22
6700	2.56	2.46	2.37	2.29	2.23
6750	2.57	2.47	2.38	2.30	2.24
6800	2.58	2.48	2.39	2.31	2.25
6850	2.59	2.49	2.40	2.32	2.26
6900	2.60	2.50	2.41	2.33	2.27
6950	2.61	2.51	2.42	2.34	2.28
7000	2.62	2.52	2.43	2.35	2.29
7050	2.63	2.53	2.44	2.36	2.30
7100	2.64	2.54	2.45	2.37	2.31
7150	2.65	2.55	2.46	2.38	2.32
7200	2.66	2.56	2.47	2.39	2.33
7250	2.67	2.57	2.48	2.40	2.34
7300	2.68	2.58	2.49	2.41	2.35
7350	2.69	2.59	2.50	2.42	2.36
7400	2.70	2.60	2.51	2.43	2.37
7450	2.71	2.61	2.52	2.44	2.38
7500	2.72	2.62	2.53	2.45	2.39
7550	2.73	2.63	2.54	2.46	2.40
7600	2.74	2.64	2.55	2.47	2.41
7650	2.75	2.65	2.56	2.48	2.42
7700	2.76	2.66	2.57	2.49	2.43
7750	2.77	2.67	2.58	2.50	2.44
7800	2.78	2.68	2.59	2.51	2.45
7850	2.79	2.69	2.60	2.52	2.46
7900	2.80	2.70	2.61	2.53	2.47
7950	2.81	2.71	2.62	2.54	2.48
8000	2.82	2.72	2.63	2.55	2.49
8050	2.83	2.73	2.64	2.56	2.50
8100	2.84	2.74	2.65	2.57	2.51
8150	2.85	2.75	2.66	2.58	2.52
8200	2.86	2.76	2.67	2.59	2.53
8250	2.87	2.77	2.68	2.60	2.54
8300	2.88	2.78	2.69	2.61	2.55
8350	2.89	2.79	2.70	2.62	2.56
8400	2.90	2.80	2.71	2.63	2.57
8450	2.91	2.81	2.72	2.64	2.58
8500	2.92	2.82	2.73	2.65	2.59
8550	2.93	2.83	2.74	2.66	2.60
8600	2.94	2.84	2.75	2.67	2.61
8650	2.95	2.85	2.76	2.68	2.62
8700	2.96	2.86	2.77	2.69	2.63
8750	2.97	2.87	2.78	2.70	2.64
8800	2.98	2.88	2.79	2.71	2.65
8850	2.99	2.89	2.80	2.72	2.66
8900	3.00	2.90	2.81	2.73	2.67
8950	3.01	2.91	2.82	2.74	2.68
9000	3.02	2.92	2.83	2.75	2.69
9050	3.03	2.93	2.84	2.76	2.70
9100	3.04	2.94	2.85	2.77	2.71
9150	3.05	2.95	2.86	2.78	2.72
9200	3.06	2.96	2.87	2.79	2.73
9250	3.07	2.97	2.88	2.80	2.74
9300	3.08	2.98	2.89	2.81	2.75
9350	3.09	2.99	2.90	2.82	2.76
9400	3.10	3.00	2.91	2.83	2.77
9450	3.11	3.01	2.92	2.84	2.78
9500	3.12	3.02	2.93	2.85	2.79
9550	3.13	3.03	2.94	2.86	2.80
9600	3.14	3.04	2.95	2.87	2.81
9650	3.15	3.05	2.96	2.88	2.82
9700	3.16	3.06	2.97	2.89	2.83
9750	3.17	3.07	2.98	2.90	2.84
9800	3.18	3.08	2.99	2.91	2.85
9850	3.19	3.09	3.00	2.92	2.86
9900	3.20	3.10	3.01	2.93	2.87
9950	3.21	3.11	3.02	2.94	2.88
10000	3.22	3.12	3.03	2.95	2.89

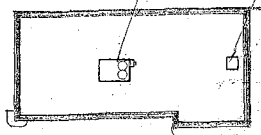
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WALL MOUNTED FAN 160 CFM: 1/2 HP
208V-1PH-60Hz, 1750 RPM, 3-SPEED
ON-OFF SWITCH INCLUDE BACK-
DRAFT DAMPER.

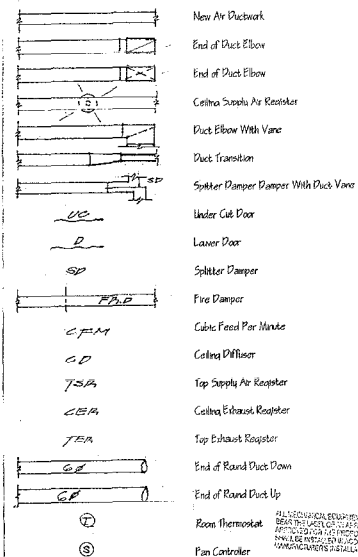
CEILING MOUNTED EXHAUST FAN.
340 CFM WITH BACKDRAFT DAMPER
1/2 HP 208V-1PH-60Hz-1750RPM

SCALE: 1/4" = 1'-0"

NEW TITON PACKAGE
UNIT GAS HEAT/COOL. A/C
SUMP TAP UNIT



SCALE: NTS



1. Mechanical contractor shall verify all measurements and job conditions at the site before work shown on these drawings is started.

2. Provide fire damper at the fire rated wall as indicated on mechanical drawing in accordance with local mechanical code and NFPA code

3. All supply air ceiling diffuser, top supply register and return air register shall be adjustable and fixed commercial type.

4. All air ducts shall be insulated in accordance with mechanical code.

5. Contractor shall provide vibration isolated and pad where placing between packaged unit and roofs necessary.

6. Contractor shall warrant his workmanship shall for one full year after this project is completed and accepted by the owner.

7. All mechanical system installation and workmanship shall meet with local mechanical code and NFPA code.

8. Gas Heating / Electric Cooling Rooftop Units:

Roof mounted high efficiency air to air unit -7 1/2 R / ton 2400 cfm
model: 48sq. Centurion (carrier).

Indoor service fan - centrifugal | direct | 2 hp | 1750 rpm | 208/230V
- 1 ph - 60Hz.

Outdoor service fan - propeller - Direct - 1/3 hp 1750, 208/230V
- 1ph - 60Hz.

THE GENERAL LAYOUT OF THE MECHANICAL SYSTEMS AND/OR THE MECHANICAL EQUIPMENT SHOWN ON THESE DRAWINGS HAS BEEN REVIEWED FOR CONFORMANCE WITH THE NATIONAL BOARD OF FIRE & MARINE ENGINEERING (NBFME) REGULATIONS AND STANDARDS.

DATE NOV 1 1 2005

Signature: [Signature]

Position: Chief Design Engineer

Company: [Company Name]

Architects / Engineers

Kentucky Avenue, S.E., Washington, D.C.

202 546

202 546

Arundel@uic.edu

Architecture Space Planning Interior Design



MECHANICAL FLOOR PLAN
3010 BENNING ROAD, SE
WASHINGTON DC. 200019

REGISTRATION

SWEET TITLE

Mi 1

204

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1999

Drawing By _____

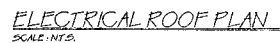
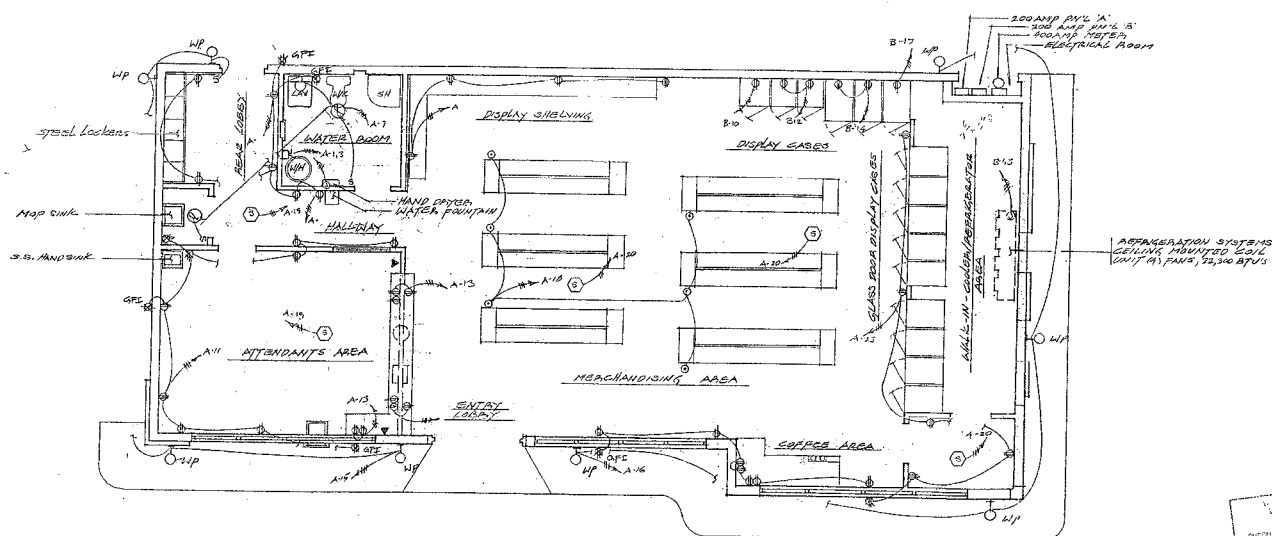
Checked by _____

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ELECTRICAL PANEL SCHEDULES

SCALE: NTD.

PANEL	1A	2A	3A	4A	5A	6A	7A	8A	9A	10A	11A	12A	13A	14A	15A	16A	17A	18A	19A	20A	21A	22A	23A	24A	25A	26A	27A	28A	29A	30A	31A	32A	33A	34A	35A	36A	37A	38A	39A	40A	41A	42A	43A	44A	45A	46A	47A	48A	49A	50A	51A	52A	53A	54A	55A	56A	57A	58A	59A	60A	61A	62A	63A	64A	65A	66A	67A	68A	69A	70A	71A	72A	73A	74A	75A	76A	77A	78A	79A	80A	81A	82A	83A	84A	85A	86A	87A	88A	89A	90A	91A	92A	93A	94A	95A	96A	97A	98A	99A	100A	101A	102A	103A	104A	105A	106A	107A	108A	109A	110A	111A	112A	113A	114A	115A	116A	117A	118A	119A	120A	121A	122A	123A	124A	125A	126A	127A	128A	129A	130A	131A	132A	133A	134A	135A	136A	137A	138A	139A	140A	141A	142A	143A	144A	145A	146A	147A	148A	149A	150A	151A	152A	153A	154A	155A	156A	157A	158A	159A	160A	161A	162A	163A	164A	165A	166A	167A	168A	169A	170A	171A	172A	173A	174A	175A	176A	177A	178A	179A	180A	181A	182A	183A	184A	185A	186A	187A	188A	189A	190A	191A	192A	193A	194A	195A	196A	197A	198A	199A	200A	201A	202A	203A	204A	205A	206A	207A	208A	209A	210A	211A	212A	213A	214A	215A	216A	217A	218A	219A	220A	221A	222A	223A	224A	225A	226A	227A	228A	229A	230A	231A	232A	233A	234A	235A	236A	237A	238A	239A	240A	241A	242A	243A	244A	245A	246A	247A	248A	249A	250A	251A	252A	253A	254A	255A	256A	257A	258A	259A	260A	261A	262A	263A	264A	265A	266A	267A	268A	269A	270A	271A	272A	273A	274A	275A	276A	277A	278A	279A	280A	281A	282A	283A	284A	285A	286A	287A	288A	289A	290A	291A	292A	293A	294A	295A	296A	297A	298A	299A	300A	301A	302A	303A	304A	305A	306A	307A	308A	309A	310A	311A	312A	313A	314A	315A	316A	317A	318A	319A	320A	321A	322A	323A	324A	325A	326A	327A	328A	329A	330A	331A	332A	333A	334A	335A	336A	337A	338A	339A	340A	341A	342A	343A	344A	345A	346A	347A	348A	349A	350A	351A	352A	353A	354A	355A	356A	357A	358A	359A	360A	361A	362A	363A	364A	365A	366A	367A	368A	369A	370A	371A	372A	373A	374A	375A	376A	377A	378A	379A	380A	381A	382A	383A	384A	385A	386A	387A	388A	389A	390A	391A	392A	393A	394A	395A	396A	397A	398A	399A	400A	401A	402A	403A	404A	405A	406A	407A	408A	409A	410A	411A	412A	413A	414A	415A	416A	417A	418A	419A	420A	421A	422A	423A	424A	425A	426A	427A	428A	429A	430A	431A	432A	433A	434A	435A	436A	437A	438A	439A	440A	441A	442A	443A	444A	445A	446A	447A	448A	449A	450A	451A	452A	453A	454A	455A	456A	457A	458A	459A	460A	461A	462A	463A	464A	465A	466A	467A	468A	469A	470A	471A	472A	473A	474A	475A	476A	477A	478A	479A	480A	481A	482A	483A	484A	485A	486A	487A	488A	489A	490A	491A	492A	493A	494A	495A	496A	497A	498A	499A	500A	501A	502A	503A	504A	505A	506A	507A	508A	509A	510A	511A	512A	513A	514A	515A	516A	517A	518A	519A	520A	521A	522A	523A	524A	525A	526A	527A	528A	529A	530A	531A	532A	533A	534A	535A	536A	537A	538A	539A	540A	541A	542A	543A	544A	545A	546A	547A	548A	549A	550A	551A	552A	553A	554A	555A	556A	557A	558A	559A	560A	561A	562A	563A	564A	565A	566A	567A	568A	569A	570A	571A	572A	573A	574A	575A	576A	577A	578A	579A	580A	581A	582A	583A	584A	585A	586A	587A	588A	589A	590A	591A	592A	593A	594A	595A	596A	597A	598A	599A	600A	601A	602A	603A	604A	605A	606A	607A	608A	609A	610A	611A	612A	613A	614A	615A	616A	617A	618A	619A	620A	621A	622A	623A	624A	625A	626A	627A	628A	629A	630A	631A	632A	633A	634A	635A	636A	637A	638A	639A	640A	641A	642A	643A	644A	645A	646A	647A	648A	649A	650A	651A	652A	653A	654A	655A	656A	657A	658A	659A	660A	661A	662A	663A	664A	665A	666A	667A	668A	669A	670A	671A	672A	673A	674A	675A	676A	677A	678A	679A	680A	681A	682A	683A	684A	685A	686A	687A	688A	689A	690A	691A	692A	693A	694A	695A	696A	697A	698A	699A	700A	701A	702A	703A	704A	705A	706A	707A	708A	709A	710A	711A	712A	713A	714A	715A	716A	717A	718A	719A	720A	721A	722A	723A	724A	725A	726A	727A	728A	729A	730A	731A	732A	733A	734A	735A	736A	737A	738A	739A	740A	741A	742A	743A	744A	745A	746A	747A	748A	749A	750A	751A	752A	753A	754A	755A	756A	757A	758A	759A	760A	761A	762A	763A	764A	765A	766A	767A	768A	769A	770A	771A	772A	773A	774A	775A	776A	777A	778A	779A	780A	781A	782A	783A	784A	785A	786A	787A	788A	789A	790A	791A	792A	793A	794A	795A	796A	797A	798A	799A	800A	801A	802A	803A	804A	805A	806A	807A	808A	809A	810A	811A	812A	813A	814A	815A	816A	817A	818A	819A	820A	821A	822A	823A	824A	825A	826A	827A	828A	829A	830A	831A	832A	833A	834A	835A	836A	837A	838A	839A	840A	841A	842A	843A	844A	845A	846A	847A	848A	849A	850A	851A	852A	853A	854A	855A	856A	857A	858A	859A	860A	861A	862A	863A	864A	865A	866A	867A	868A	869A	870A	871A	872A	873A	874A	875A	876A	877A	878A	879A	880A	881A	882A	883A	884A	885A	886A	887A	888A	889A	890A	891A	892A	893A	894A	895A	896A	897A	898A	899A	900A	901A	902A	903A	904A	905A	906A	907A	908A	909A	910A	911A	912A	913A	914A	915A	916A	917A	918A	919A	920A	921A	922A	923A	924A	925A	926A	927A	928A	929A	930A	931A	932A	933A	934A	935A	936A	937A	938A	939A	940A	941A	942A	943A	944A	945A	946A	947A	948A	949A	950A	951A	952A	953A	954A	955A	956A	957A	958A	959A	960A	961A	962A	963A	964A	965A	966A	967A	968A	969A	970A	971A	972A	973A	974A	975A	976A	977A	978A	979A	980A	981A	982A	983A	984A	985A	986A	987A	988A	989A	990A	991A	992A	993A	994A	995A	996A	997A	998A	999A	1000A	1001A	1002A	1003A	1004A	1005A	1006A	1007A	1008A	1009A	1010A	1011A	1012A	1013A	1014A	1015A	1016A	1017A	1018A	1019A	1020A	1021A	1022A	1023A	1024A	1025A	1026A	1027A	1028A	1029A	1030A	1031A	1032A	1033A	1034A	1035A	1036A	1037A	1038A	1039A	1040A	1041A	1042A	1043A	1044A	1045A	1046A	1047A	1048A	1049A	1050A	1051A	1052A	1053A	1054A	1055A	1056A	1057A	1058A	1059A	1060A	1061A	1062A	1063A	1064A	1065A	1066A	1067A	1068A	1069A	1070A	1071A	1072A	1073A	1074A	1075A	1076A	1077A	1078A	1079A	1080A	1081A	1082A	1083A	1084A	1085A	1086A	1087A	1088A	1089A	1090A	1091A	1092A	1093A	1094A	1095A	1096A	1097A	1098A	1099A	1100A	1101A	1102A	1103A	1104A	1105A	1106A	1107A	1108A	1109A	1110A	1111A	1112A	1113A	1114A	1115A	1116A	1117A	1118A	1119A	1120A	1121A	1122A	1123A	1124A	1125A	1126A	1127A	1128A	1129A	1130A	1131A	1132A	1133A	1134A	1135A	1136A	1137A	1138A	1139A	1140A	1141A	1142A	1143A	1144A	1145A	1146A	1147A	1148A	1149A	1150A	1151A	1152A	1153A	1154A	1155A	1156A	1157A	1158A	1159A	1160A	1161A	1162A	1163A	1164A	1165A	1166A	1167A	1168A	1169A	1170A	1171A	1172A	1173A	1174A	1175A	1176A	1177A	1178A	1179A	1180A	1181A	1182A	1183A	1184A	1185A	1186A	1187A	1188A	1189A	1190A	1191A	1192A	1193A	1194A	1195A	1196A	1197A	1198A	1199A	1200A	1201A	1202A	1203A	1204A	1205A	1206A	1207A	1208A	1209A	1210A	1211A	1212A	1213A	1214A	1215A	1216A	1217A	1218A	1219A	1220A	1221A	1222A	1223A	1224A	1225A	1226A	1227A	1228A	1229A	1230A	1231A	1232A	1233A	1234A	1235A	1236A	1237A	1238A	1239A	1240A	1241A	1242A	1243A	1244A	1245A	1246A	1247A	1248A	1249A	1250A	1251A	1252A	1253A	1254A	1255A	1256A	1257A	1258A	1259A	1260A	1261A	1262A	1263A	1264A	1265A	1266A	1267A	1268A	1269A	1270A	1271A	1272A	1273A	1274A	1275A	1276A	1277A	1278A	1279A	1280A	1281A	1282A	1283A	1284A	1285A	1286A	1287A	1288A	1289A	1290A	1291A	1292A	1293A	1294A	1295A	1296A	1297A	1298A	1299A	1300A	1301A	1302A	1303A	1304A	1305A	1306A	1307A	1308A	1309A	1310A	1311A	1312A	1313A	1314A	1315A	1316A	1317A	1318A	1319A	1320A	1321A	1322A	1323A	1324A	1325A	1326A	1327A	1328A	1329A	1330A	1331A	1332A	1333A	1334A	1335A	1336A	13
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[illegible]

ELECTRICAL FLOOR PLAN
scale: 1/4" = 1'-0"

[illegible]

Carroll Architects

Architects / Engineers

Kentucky Avenue, S.E., Washington, D.C.

202	546	1216
<i>Arctostaphylos</i>	<i>Syringa</i>	<i>Salix</i>



ELECTRICAL FLOOR
PLAN AND DETAILS
5010 DENNING ROAD, SE
WASHINGTON DC. 20009

REGISTRATION

SHEET TITLE _____

Date _____

Scale _____

Drawing by _____

Control by _____

Job No. _____

FOR UNCLASSIFIED INFORMATION, CALL OR E-MAIL US AT 1-800-697-7646

GENERAL NOTES

1. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND LICENSES AS REQUIRED FOR CONSTRUCTION.
2. ALL INFORMATION ON THE LOCATIONS OF EXISTING UTILITIES ARE TAKEN FROM THE BEST AVAILABLE PUBLIC RECORDS.
3. THE CONTRACTOR SHALL INSTALL TEMPORARY OR PERMANENT PAVEMENT REPLACEMENT AS NECESSARY TO MINIMIZE DISRUPTION OF TRAFFIC. NO TRENCH SHALL BE LEFT OPEN DURING NON WORKING PERIODS.
4. CONSTRUCTION METHODS, MATERIALS AND SPECIFICATIONS SHALL COMPLY WITH THE DISTRICT OF COLUMBIA STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE STATED.
5. CALL "MISS UTILITY" AT 1-800-257-7777 48 HOURS PRIOR TO THE START OF WORK. THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDERGROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION.
6. NOTIFY THE DEPARTMENT OF PUBLIC WORKS - PUBLIC UTILITY ADMINISTRATION 48 HOURS PRIOR TO THE START OF CONSTRUCTION.
MR. RALPH JORDAN,
CHIEF UTILITY INSPECTOR
202-767-7622
7. CONTACT THE DEPARTMENT OF PUBLIC WORKS - PUBLIC SPACE MAINTENANCE ADMINISTRATION 48 HOURS PRIOR TO THE START OF CONSTRUCTION AT 202-767-8522.
8. USE MANHOLE ENTRY SEALS WHERE REQUIRED.

STATEMENT BY PERSON RESPONSIBLE FOR MAINTENANCE

The undersigned agrees to maintain and operate the discharge facilities in such a manner as to comply with the provisions of Section 509 through 518 of the D.C. Law 5-188. Responsibility for maintenance and operation may be transferred to another entity upon written notice to the Department from the undersigned and the entity assuming responsibility, certifying that the transfer of responsibility for maintenance and operation in compliance with the Section 509 through 518 has been accepted.

Signature of the person responsible for maintenance
(It may be the applicant)

Kuo Yuen
Name and title (please type)

4235 Connecticut Ave, N.W.
Address

Washington DC 20008
Date

Telephone No. 202-366-5945

STATEMENT BY PROFESSIONAL ENGINEER REGISTERED IN THE DISTRICT OF COLUMBIA

This is to certify that the engineering features of this stormwater discharge facility have been designed/verified by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of stormwater pollutants. I further certify that the facility has been designed in accordance with the specification required under Section 509 through 518 of the D.C. Law 5-188. It is also stated that the undersigned has furnished the applicant with a set of instructions for the maintenance and operation of the stormwater discharge facility.

Signature of Engineer

Kenn S. Pennic, P.E.
Name and title (Please type)

2916 Gleason Pl, N.W.
Address

NWDC DC 20001
Date

Telephone No. 202-733-3270



AS-BUILT CERTIFICATION BY PROFESSIONAL ENGINEER

Within 21 days after completion of construction of the stormwater discharge facility, please send this page to the Soil Resources Branch - Department of Consumer and Regulatory Affairs.

1. Stormwater Discharge Facility Information

Source Name: _____
Source Location: Street: _____
City: _____
DCRA Permit No.: _____
Date Issued: _____

2. As-Built Certification

I hereby certify that this stormwater discharge facility has been built substantially in accordance with the approved plans and specifications, and that any substantial deviations (noted below) will not prevent the system from functioning in compliance with the requirements of Section 509 through 518 of D.C. Law 5-188 when properly maintained and operated. These determinations have been based upon on-site observation of construction, scheduled and conducted by me or by a project representative under my direct supervision. I have enclosed one set of as-built engineering drawings.

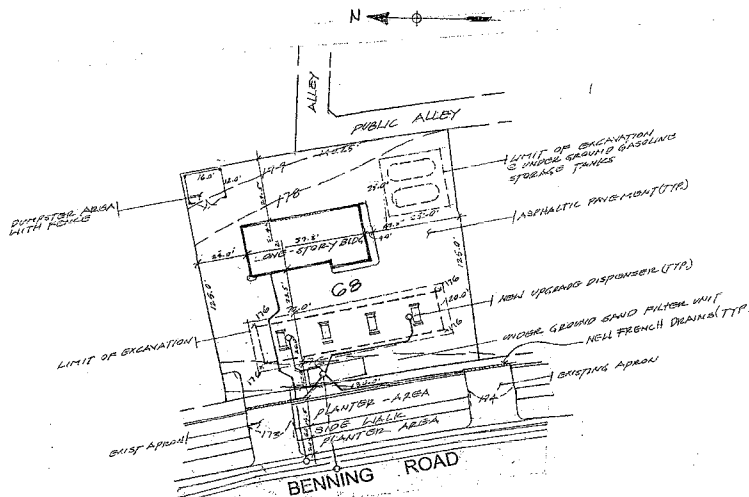
Signature of Engineer _____ Name (Please type) D.C. Reg. No. _____

Company Name _____

Affix Seal _____ Company Address _____

Date _____ Telephone No. _____

Substantial deviations from the approved plans and specifications (attach additional sheets if required).



Water And Sewer Plan

Carroll Architects

Architects / Engineers

Kentucky Avenue, S.E., Washington, D.C.

202 546 1216

Architecture Urban Planning Interior Design



STORM WATER
MANAGEMENT GENERAL NOTES
5010 PENNING ROAD, SE
WASHINGTON DC 20009

REVISIONS

As Shown

L. Carr

By

Check By

Date

10.4a

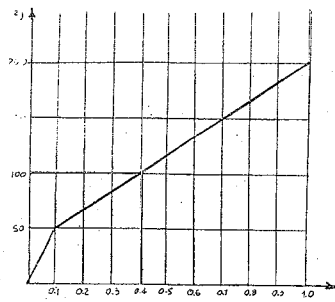


FIG. 1
IMPERVIOUS AREA OF THIS WATERSHED (Ia) (ACRES)
MINIMUM REQUIRED FILTER AREA (A) (ACRES)

SAND FILTER WATER QUALITY STRUCTURE SPECIFICATIONS

UPPER AGGREGATE LAYER

The washed aggregate or gravel layer at the top of the filter shall be one (1) inch thick and meet ASTM standard specifications (1 inch maximum diameter).

GEOTEXTILE FABRIC

The filter fabric beneath the one-inch layer of gravel on top of the filter shall be Ekvik 9220 filter fabric or equivalent.

The filter cloth layer beneath the sand shall conform to the following specifications:

PROPERTY	Test Method	Unit	Spec.
Material	Nonwoven geotextile fabric		
Unit Weight	Oz./Sq. Yd.	8 (min.)	
Filtration Rate	In./Sec.	.08 (min.)	
Puncture Strength	ASTM D-751 (modified)	Lb.	125 (min.)
Modulus Burst Strength	ASTM D-751	Psi	400 (min.)
Tensile Strength	ASTM D-1682	Lb.	200 (min.)
Equi. Opening Size	US Standard Sieve	No.	80 (min.)

The fabric filter should be cut with sufficient dimensions to cover the entire wetted perimeter of the filtering area with a six-inch minimum overlap.

SAND FILTER LAYER

The sand filter layer should be 22-25 inches deep. Use ASTM C33 Concrete Sand (32).

GRAVEL BED AROUND COLLECTOR PIPES

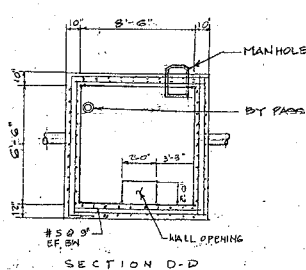
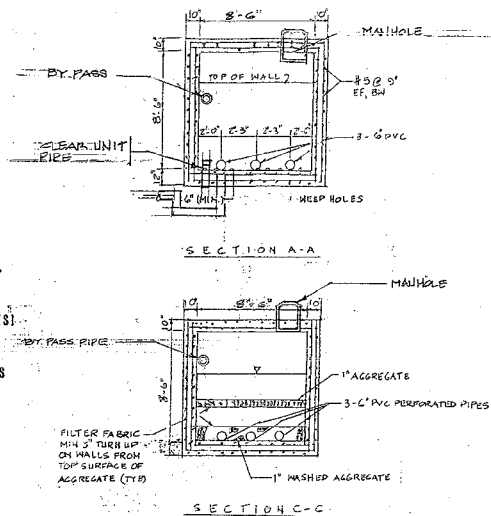
The gravel layer surrounding the collector pipes shall be 1/2 to two (2) inches diameter gravel and provide at least two (2) inches of cover over the top of the drainage pipes. No gravel is required under the pipes. The gravel and the sand layer above must be separated by a layer of geotextile fabric meeting the specification listed above.

UNDERDRAIN PIPING

The underdrain piping consists of three 6-inch perforated pipes. The piping should be reinforced to withstand the weight of the overburden. Perforations should be 3/8 inch. All piping is to be schedule 40 polyvinyl chloride (pvc) or greater strength.

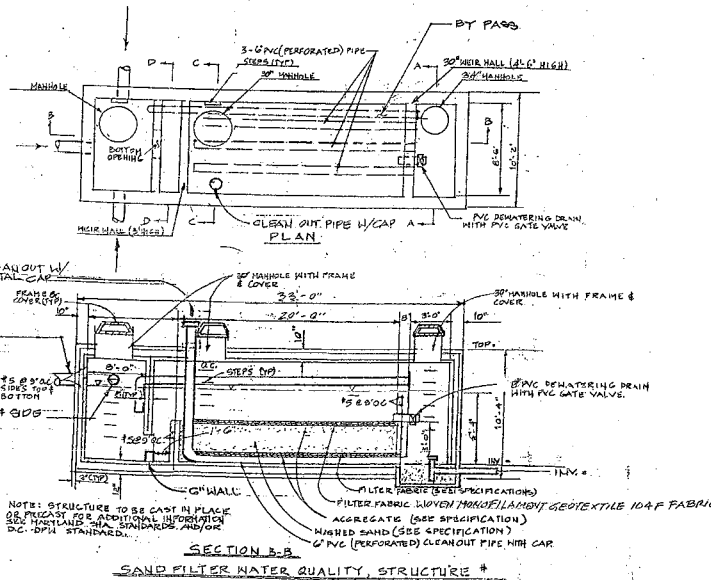
The minimum grade of piping shall be 1/8 inch per foot (one percent (1%) slope). Access for cleaning all underdrain piping is needed. Clean-outs for each pipe shall extend at least six (6) inches above the top of the upper filter surface, e.g. the top layer is 12" x 12" x 12".

Each pipe shall be thoroughly wrapped with geotextile fabric meeting the above detailed specification before placement in the filter.



FILTER CHAMBER MAINTENANCE

- CARE SHALL BE EXERCISED TO PREVENT CONTAMINATION OF FILTERING SAND AND AGGREGATE DURING CONSTRUCTION. ALL CONTAMINATED MATERIALS MUST BE REPLACED WITH CLEAN MATERIALS.
- NO WATER IS ALLOWED TO FLOW INTO THE FILTER CHAMBER BEFORE THE STABILIZATION OF THE SURROUNDING AREA.
- THE WATER LEVEL IN THE FILTER CHAMBER SHALL BE MONITORED BY THE OWNER ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM FOR THE FIRST YEAR AFTER COMPLETION OF CONSTRUCTION. IT IS RECOMMENDED THAT A LOG BOOK BE MAINTAINED INDICATING THE RATE OF DEWATERING AFTER LARGE STORM EVENTS AND THE WATER DEPTH FOR EACH OBSERVATION. ONCE THE PERFORMANCE HAS BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS.
- IF THE RECORD SHOWS THAT THE DEWATERING TIME OF THE CHAMBER TAKES LONGER THAN 10 HOURS, THE TOP LAYER AGGREGATE AND THE FILTER FABRIC UNDERNEATH MUST BE REPLACED WITH NEW FILTER FABRIC AND CLEAN AGGREGATE. INLET CHAMBER MUST BE DEWATERED WITH SAND PUMP AND THE BOTTOM DEPOSITION MUST BE CLEARED THOROUGHLY.



SAND FILTER WATER QUALITY STRUCTURE CALCULATIONS

RAINFALL DATA:

15 YEAR FREQUENCY, 24 HOUR STORM
To = 5 MINUTES, I₁₀ = 7.56 INCHES/HOUR, I₂ = 5.28 INCHES/HOUR

PEAK DISCHARGE:

PRE-DEVELOPMENT

C = 0.35; A = 0.36 AC
Q_p = (0.35) (5.28) (0.36) = 1.54 CFS
Q₁ = (0.35) (7.56) (0.36) = 1.00 CFS ALLOWABLE RELEASE
ACTUAL RELEASE = 0.9 CFS
@ PEAK ELEVATION, 760.00

POST-DEVELOPMENT

COMPOSITE C = 0.35 AC (0.35) + 0.35 AC (0.35) = 0.78
COMPOSITE C = 0.35 AC (0.35) + 0.35 AC (0.35) = 0.78
Q_p = (0.78) (5.28) (0.36) = 1.56 CFS
Q₁ = (0.78) (7.56) (0.36) = 2.34 CFS

COMPOSITE FIRST FLUSH COMPUTATIONS

SITE AREA = 16,890 SQ. FT.
BUILDING + SIDEWALK = 2758 SQ. FT. @ 0.35"
PAVEMENT = 14,228 SQ. FT. @ 0.45"
GRASS = 1178 SQ. FT. @ 0"

16,890 SQ. FT. (SITE AREA)
1,178 SQ. FT. (GRASS AREA)
15,712 SQ. FT. = A_{imp}
Q_p = (2850) (0.35) + (12495) (0.45) = 0.43 - 1/2" = 0.5" of run off
1682

VOLUME OF STORAGE REQUIRED:

V_s = (Q_p) (A_{imp}) - (P) (T) (A_u)
Q_p = 0.5" A_{imp} = 15,712 F = 1.187 F/HR (INFILTRATION RATE FOR SAND); T = 1 HOUR FILLING TIME (FROM INFILTRATION DESIGN PRACTICES); A_u = 98 SQ. FT. (FIGURE 1, MIN REQUIRED FILTER AREAS FOR D.C. UNDERGROUND SAND FILTERS)
V_s = (15,712) (15,712 SQ. FT.) - (1.187 F/HR) (98) (60 MIN)
V_s = 692.6 - 70.8 = 321.8 CU. FT. = 1.34 CU. FT.
A_u = 98 SQ. FT. 102 SQ. FT. PROVIDED
A₁ = A_u - 98.0 = 32.43
A₁ = 32.4 SQ. FT. REQUIRED, 51 SQ. FT. PROVIDED

VOLUME OF SAND FILTER LAYERS:

V₁ = (A_u) (D) (V_v)
A_u = 98 SQ. FT. 4-3 FEET (DEPTH OF FILTER LAYER);
V_v = 0.6 (VOID RATIO FOR SAND)
V₁ = (98 SQ. FT.) (3 FT.) (0.6)
V₁ = 178 C.F. REQ., 12' x 8.5' x 3' x 0.6 = 153.6 C.F. PROVIDED

FIRST CHAMBER BOTTOM VOLUME:

V₁ = A₁ (D)
A₁ = 32 SQ. FT. (AREA OF FIRST CHAMBER); 4-3 FEET
V₁ = (32 SQ. FT.) (3 FT.)
V₁ = 96 C.F. REQ., 6'0" x 8.5' x 3' = 153 C.F. PROVIDED

FIRST AND CHAMBER TOP VOLUME:

V₁ + V₂ = V₁ + (V₁ + V₂)
V₁ = 384 CU. FT.; V₂ = 184 CU. FT.; V₁ = 153 CU. FT.
V₁ + V₂ = 568 - (184 + 153) = 247 CU. FT.
20' x 8.5' x 1.5' = 360 C.F. PROVIDED

H = 200 CU. FT. = 200 CU. FT. = 1.53 FT.

A₁ = A₁ 130.43

D = H + D = 3 + 1.53 = 4.53 FEET

CALCULATION OF DETENTION TIME AFTER STORAGE VOLUME FILLS D.C. SAND FILTER STRUCTURE

Q = (Q) (A_f) (H₁)
Q = PERCOLATION RATE IN C.F./HOUR
K = 0.6 FT. /HR. FOR MIXED SAND
H = 4.53 FT. - 0.25 FT. = 4.28 FT.
d₁ = 3.00 FT. - 0.25 FT. = 2.75 FT.

T = (0.6 FT. /HR. / 3.00 FT. /HOUR) = 0.2 FT. /HOUR

T = V_s / Q = 321.8 / 0.2 = 1609.5 = 6.4 HRS. SAY 7 HRS.

FLOW THROUGH ORIFICE INTO SAND FILTER @ STRUCTURE

Q = C_d A_o H₁ C = 0.6 A = 8" PIPE = 0.342 S.F.; H = 1.1; g = 64.4

Q REQUIRED FOR 15,712 SQ. FT. AREA (0.365 AC) @ 0.37" OF RUNOFF IS APPROXIMATELY SAME AS 2 YEAR, 5 MIN STORM. THEREFORE, Q + C_d = (0.53) (5.28) (0.365 AC) = 1.6 CFS.

FLOW THROUGH 8" PIPE = Q = (0.6) (0.342) c (64.4) (1.1) = 1.7 CFS

Carroll Architects

Architects / Engineers

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202 546 1216

ARCHITECTS ENGINEERS PLANNING INTERIOR DESIGN



SAND FILTER WATER QUALITY STRUCTURE
3010 PENNING ROAD S.E.
WASHINGTON DC, 20009

REVISIONS

DATE
BY
CHECKED BY
DATE